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RESEARCH METHODOLOGY AND ACCOUNTING THEORY FORMATION*

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EACH year numerous candidates for degrees and for academic promotion write papers related in some way to the field of accounting. These papers represent research, broadly interpreted; they range in scope from tabulations prepared from the results of relatively simple questionnaires and presented with no pretense of interpretation or analysis to the preparation of "operationally meaningful hypotheses" and the construction of complicated models of possible business behavior.

This paper examines some methods of inquiry and suggests certain types of investigation that seem to be appropriate for the study of accounting. More specifically, a tentative framework is set forth to indicate some possible levels of abstraction at which research in accounting could be undertaken. Such a framework, to be complete, would need to cover an area that ranges from the simplest aspects of fact collection to the philosophical boundaries of concept formation. Clearly such completeness is beyond the scope of this general paper, but to a limited degree the following broad areas are mentioned and related, where feasible, to accounting investigation:

1. Logical structure and deductive systems;
2. Measurement and induction;
3. Behavioral relations;
4. Welfare and normative responsibilities.

Logical Structure and Deductive Systems. One of the outstanding developments of the twentieth century has been the expansion of the field of logic. One of the more important advances of the social sciences in the next few decades may well result from attempts to make use of these developments. To date social scientists have probably shown greater maturity in the use of inductive logic and statistical weapons, but their respect grows for the importance of deductive methods in scientific inquiry.

Papandreou has recently discussed the nature of the deductive process and its application to the social sciences. His requirements for a logical calculus are essentially those of Carnap and are set forth substantially as follows:

1. A list of symbols (or marks) which themselves are devoid of meaning;
2. A list of rules of permissible sequences of such symbols ("rules of formation" or "initial formulas");
3. A statement of the rules of deductive inference by which the initial formulae of (2) may be transformed.[1]

* This is the second in a series of four papers based on the work of the Committee on Accounting Theory during the two years ended December 31, 1959. It represents the views of the author and is in no sense a committee report.

Logicians have attempted to eliminate intuitive or psychological factors from their formal structure and to consign such factors to derived deductive systems. The result is that analytical or logical truths are true by stipulation or convention. Logical proofs perform extremely useful services, but laymen must understand that their scope is limited. "A proof is a sequence of formulae where each formula either is an initial formula of the calculus or may be obtained from the preceding formula or formulae in the sequence on the basis of the rules of deductive inference adopted in the calculus. . . . "[2]

No doubt the attempt to draw a sharp line between the logical calculus and the "interpretation" or meaning that may be assigned to the symbols and rules has merit. Certainly proofs that are derived within the abstract system can be utilized in any or all interpreted systems without proving the theorems in each system all over again. Considerable economy of effort may therefore result from the construction of a completely abstract system. Moreover, the relationships are not obscured by language and psychological impediments that sometime turn up in less abstract systems.[3]

The attempts of mathematicians and logicians to remove all traces of psychology and intuition have been only partially successful. The separation of activity into the logical calculus and the interpretation has moved most of the psychological elements into the interpretive area. Proofs within the area of the logical calculus, as well as proofs anywhere else, must be psychologically satisfying, but fortunately the typical educated mind has been trained to accept and be satisfied by the conventional rules of formation and rules of deductive inference. To a non-logician, attempts to get away completely from psychological overtones appear to be a mistake. The chief objective of logic would seem to be to direct the mind to facets that were not hitherto obvious. As Carnap points out, "Though logic cannot lead us to anything new in the logical sense, it may lead to something new in the psychological sense. Because of limitations of man's psychological abilities, the discovery of a sentence that is L-true (logically true) or of a relation of L-implication is often an important cognition . . . the psychological content (the totality of associations) of one of these (new) sentences may be entirely different from that of the others."[4] "The chief function of a logical calculus in its applications to science is not to furnish logical theorems . . . but to guide the deduction of factual conclusions from factual premises."[5]

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[1] Andreas G. Papandreou, *Economics as a Science* (New York: J. B. Lippincott Company, 1958), p. 15. See also C. I. Lewis, *Survey of Symbolic Logic* (Berkeley: University of California Press, 1918), p. 355. "A Mathematical System is any set of strings of recognizable marks in which some of the strings are taken initially and the remainder derived from these by operations performed according to rules which are independent of any meaning assigned to the marks."

[2] Andreas G. Papandreou, *op. cit.*, p. 17. In the mood of *Ecclesiastes* A. P. Ushenko states: " . . . the whole field of logic and mathematics consists of tautologies derived from other tautologies by means of tautologies." *The Theory of Logic* (New York: Harper & Brothers, Publishers, 1936), p. 131.

[3] "When we apply algebra to the solution of some concrete problem, we are employing a *symbolic calculus* on which the steps involved in solving the particular problem have all been provided for; little further thought need be expended, once the symbols of the algebra (xy . . .) have been properly interpreted or adapted to the problem." Raymond L. Wilder, *Foundations of Mathematics* (New York: John Wiley & Sons, Inc., 1952), p. 196.

[4] Rudolf Carnap, *Introduction to Symbolic Logic and its Applications* (New York: Dover Publications, Inc., 1958) pp. 21, 22. Bertrand Russell supports this approach. "If we know that p is true and that p implies q, we can proceed to assert q. There is *something* psychological about inference: inference is a method by which we arrive at new knowledge, and what is not psychological about it is the relations which allow us to infer correctly; but the actual passage from the assertion of p to the assertion of q is a psychological process, and we must not seek to represent it in purely logical terms." *Introduction to Mathematical Philosophy* (London: Allen & Unwin, 1919), p. 149. Jean Piaget stresses the strange situation of logicians trying to eliminate psychology and psychologists trying to embrace logic. See *Logic and Psychology* (New York: Basic Books Inc., 1957), p. 2 ff.

Accountants who have already finished their formal training in the discipline and are now earning their living by making practical applications are not likely to have the necessary interest to conduct research in fundamental logic or the competence to appraise its results. Accounting in the next generation, however, will bear little resemblance to the art as it is now practiced. The profession has in the past consisted of some able men armed with a kit of practical rules; and conceivably it could move in this more or less haphazard manner to meet the future needs of society, but the systematic structure of logic will certainly become an increasingly important influence. In any discipline the guiding rules of logic are presupposed: " . . . this means that all expression and laws of logic are treated on an equal footing with the primitive terms and axioms of the discipline under construction; the logical terms are used in the formulation of the axioms, theorems and definitions, for instance, without an explanation of their meaning, and the logical laws are applied in proofs without first establishing their validity."[6] Is it not too much to insist that professional accountants and research men know the presuppositions and framework of their profession?

The Papandreou volume and many related articles are evidence of the progress of modern logical methods in the field of economics. Psychologists have been working to bring the processes of logic and abstract mathematics to bear on the problems of behavior. The newer approach to organization theory has expanded well beyond vague references to decision-making groups, and at least some college departments have imported specialists in logical methods. Modern machines upon which the accountant may have to depend for future detail work are constructed along logical lines; their circuits simulate the logical rules of deductive inference. Thus, future accountants will undoubtedly have to know how the elements of a logical or mathematical system may be selected and how the rules may be modified. With the rise of the "specialist-team" approach to business problems and with philosophers now sitting in the game, some understanding of the broader philosophical doctrines of empiricism, solipsism, universalism, phenomenalism, rationalism, etc., may be required. A bumbling distinction between relativism and absolutism is no longer sufficient even today and such stock intellectual cliches as "it is logical to assume," etc., are now on occasion examined to see whether they are or are not in fact "logical."

In recent years there has been considerable activity aimed at relating accounting as an ordered discipline to an accepted logical apparatus; thereby bringing accounting into a deductive or axiomatic system. It is desirable to find "interpretations"—meanings within the framework of accounting—for the undefined technical terms (the initial formulas) of the logical "calculus."[7] This type of investigation tends to separate the form from the substance and shows tremendous promise as a research tool, but the reader should be warned that the effectiveness of a deduc-

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[5] Rudolf Carnap, *Foundations of Logic and Mathematics* (Chicago: University of Chicago Press, 1939), p. 35. Tobias Danzig expresses a similar view: "To me, the tremendous importance of . . . symbolism lies not in . . . sterile attempts to banish intuition from the realm of human thought, but in its unlimited power to aid intuition in creating new forms of thought." *Numbers, the Language of Science* (Garden City: Doubleday Anchor Books, 1956), p. 100.

[6] Alfred Tarski, *Introduction to Logic* (New York: Oxford University Press, 1941), p. 119.

[7] "If Σ is an axiom system, then an *interpretation* of Σ is the assignment of meanings to the undefined technical terms of Σ in such a way that the axioms become true statements for all values of the variables. . . . As a rule we shall use the word 'model' to denote the result of the assignment of meaning to the undefined terms." Raymond L. Wilder, *op. cit.*, pp. 24–25. " . . . one could start with a calculus (any calculus) and attempt to give it an interpretation (i.e., assign meaning to the symbols) which would turn it into a deductive system." Andreas G. Papandreou, *op. cit.*, p. 14.

tive system depends on the whole apparatus and that in some cases the distinction between logical calculus and interpretation may be difficult to draw. In physics, for example, some intermediate, non-elementary terms have no intuitive interpretation although the system as a whole is an interpreted system and the results of the system may be intuitively acceptable.[8]

Littleton's *Structure of Accounting Theory* represents an ambitious but on the whole unsatisfying attempt to present and discuss accounting without developing a self-contained deductive system.[9] In "Choice Among Alternatives" he aligned himself more squarely in the direction of classification and definition and apparently failed to understand the relationship of his interpretive work to the more direct postulational approach recommended by Chambers.[10]

Perhaps the most ambitious program at the postulational level has been carried on by Mattessich.[11] He has set forth some axioms, definitions, and requirements and has combined them with logic and mathematics to form a deductive system for accounting. Needless to say, he is an uncompromising advocate of such an axiomatic structure. His list of the advantages of such a system follows:

1. It introduces great generality which proves to be highly economical in the development of new accounting systems or in the expansion of existing ones, as well as in setting up accounting models.
2. It liberates the structure from the facade. It shows that a reality, a flow system, underlies every accounting system. . . .
3. It opens new perspectives. . . . Features which have been hidden behind the technical language of the accountant are revealed by the more general and fundamental language of mathematics.
4. It brings a more rigorous order into what some call 'the art of ordering'. . . . Often it is not clear which of these principles, standards and the rest have, from the purely logical point of view, the character of axioms, theorems . . .
5. It may facilitate the translation of concepts of one branch of accountancy into the concepts of another branch.[12]

For a tentative system Mattessich has suggested three "axioms," seventeen "definitions," and seven "requirements." Moreover, with the aid of an appropriate logical calculus, including the mathematical apparatus of matrix algebra, he proceeds to prove some "theorems" that are

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[8] "In contemporary methodology we investigate deductive theories as wholes as well as the sentences which constitute them; we consider the symbols and expressions of which these sentences are composed, properties and expressions and the things which the expressions 'talk about' . . . . " Alfred Tarski, *op. cit.*, pp. 138–139. Carnap points out that the physicists often are able to use terms that they cannot explain in everyday language. *Foundations*, *op. cit.*, pp. 68–69.

[9] A. C. Littleton, *Structure of Accounting Theory* (American Accounting Association, 1953). This worthy volume falls short precisely in the area of structure.

[10] A. C. Littleton, "Choice Among Alternatives." Accounting Review, July, 1956. R. J. Chambers, "Blueprint for a Theory of Accounting," *Accounting Research*, January, 1955. Chambers expanded his recommendations in "Detail for a Blueprint," Accounting Review, April, 1957. The overall case for the postulational method is, of course, not questioned in spite of the charge that logical truth is tautological. " . . . postulational thinking is not merely a toy of the mathematician but is something which . . . cannot be avoided in any subject in which one attempts to think logically." Moses Richardson, *Fundamentals of Mathematics* (New York: The Macmillan Company, 1941), p. ix.

[11] Richard Mattessich, "Toward a General and Axiomatic Foundation of Accountancy with an Introduction to the Matrix Formulation of Accounting Systems," *Accounting Research*, October, 1957, pp. 328–356. See also his "The Constellation of Accountancy and Economics," Accounting Review, October, 1956, and "Mathematical Models in Business Accounting," Accounting Review, July, 1958.

[12] Richard Mattessich, "Toward a General Theory," *op. cit.*, pp. 329–330. Tarski is also enthusiastic about the benefits of logical method. "It should be observed what an extremely elementary form—from the psychological point of view—all mathematical reasonings assume due to the knowledge and application of the laws of logic and the rules of inference; complicated mental processes are entirely reducible to such simple activities as the attentive observation of statements previously accepted as true, the perception of structural, purely external connections among these statements and the execution of mechanical transformations as prescribed by the rules of inference," *op. cit.*, p. 49. Wilder states: "It reduces mathematics to a strictly 'formal' process, with no direct reference to any 'real' interpretation of the symbols involved. It has the advantages that accrue from avoiding errors due to varied interpretations of terms or unsuitable connotations, such as are frequently made in the use of ordinary language. . . . " *Op. cit.*, p. 200.

important aspects of the accounting structure.

The research accountant may wish to know how one goes about selecting axioms, definitions, undefined terms, the rules for transformation, and the appropriate mathematics.[13] The theorist will normally accept without question the rules of formation and transformation (deductive inference rules including substitution and detachment), the truth tables, definitions, relations, and the other apparatus of symbolic logic. Interpretations of logical calculi in the field of numbers and of geometry will usually be accepted.

Considerable freedom may be exercised in making the interpretation, in selecting the primitive (initial) terms, and in selecting the axioms. Arbitrary sentences may be used for axioms but the " . . . choice is not irrelevant; it depends on whether the interpretation can yield a rich language or only a poor one. . . . " A system of logic is not a matter of choice, but is either right or wrong, if an interpretation of the logical signs is given in advance.[14] In most cases it is necessary to have some knowledge or intuitive understanding of the undefined terms of a system. Peano assumed, for example, that "successor" was well enough understood to be used as a primitive term. Mattessich has assumed that "flow" is an acceptable undefined term. In any event the circularity of an infinite regress is avoided by assuming that the undefined terms are in fact understood.[15]

To some extent the theorist may select few or many axioms. Too few may make the theorems more difficult to "prove." Too many increases the possibilities for inconsistency and non-independence in the deductive system.

Before turning to a brief overview of scientific method it may be pointed out that the term "theory" is usually applied to the whole apparatus, extending from the primitive statements and rules for transforming them to other acceptable sentences, to the construction of axioms, definitions, classes, etc., with empirical content, and to the accumulated theorems that have been proved. If the theory is rich in the sense of being a reasonably accurate characterization, its resulting models and related abstractions may be used for description, explanation, and perhaps prediction.

Measurement and Induction

This section deals in an elementary way with some non-deductive problems of scientific method and in passing with its application to research in accounting. It should be emphasized at the outset that accounting is carried out to accomplish objectives and is therefore tinged with purpose. Moreover, as a profession accounting must be placed in a setting which takes account of the additional social purposes that society expects a profession to fulfill. Our measurement and decision rules are influenced by conflicting group pressures and the profession must therefore exhibit enough stubborn honesty to "preserve equity," at least in the measuring and reporting sense, among these groups according to the hierarchy of worthiness established by prevailing social attitudes.

In the tradition of positive versus welfare economics it may be possible to abstract from the purposive aspects and fit the positive uniformities into a deductive system, wring the statements dry of im-

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[13] In passing it may be noted that Mattessich in his earlier work selected for his axioms: (1) plurality, (2) doubled effect and (3) period. Definitions covered among others such items as account, entity, closed system, to balance. Representative requirements were evaluation, duration, and unit.

[14] Carnap. *Foundations, op. cit.*, p. 28.

[15] The foundations of mathematics is disturbed by the problem of deciding which concepts are in fact most primitive. The intuitionists (Kronecker, Brovwer, Heyting) feel that the ability to conceive the repetitive process necessary for the series of integers is more primitive than the logical relations by which the number system has been developed by Frege, Russell and others. See Wilder, *op. cit.*, Ch. IX and X.

plications by logical and mathematical machinery, and add the welfare and ethical provisions later. Perhaps sometime the profession will develop a twentieth-century Aquinas who can relate the technical system to its purposes and thus present an integrated theory of accounting.[16]

Scientific method is composed primarily of the interaction of deductive methods and the philosophical doctrine known as empiricism. " . . . scientific method consists in inventing hypotheses which fit the data, which are as simple as is compatible with this requirement, and which makes it possible to draw inferences subsequently confirmed by observation."[17]

It is generally agreed that scientific method involves more than definition and classification. An essential step, although not necessarily the first in the sequence, consists of observation. Clearly it is impossible to observe everything and hope that truth will somehow be revealed to those who steadfastly observe. Observations must be scrutinized for relationships, uniformities, and common factors. Aspects that are thought to be immaterial for the immediate objectives may be dropped by applying the process of abstraction, and aspects of immediate importance may be highlighted by being made requirements for the definitions and classifications which in turn are employed to help form hypotheses. Finally, new hypotheses are set up to channel future observation so that the researchers can utilize his scarce time to better advantage than by attempting the impossible goal of observing everything.

An hypothesis is an attempt to describe relationships for purposes of prediction.[18] Therefore one of the requirements of a good research scientist is that he have enough imagination to intuit relationships (sometimes from scanty evidence) and to set up hypotheses that can be tested—found to be relatively true or false—by subsequent observations. If subsequent observations indicate that the truth or predictive probability is high enough to satisfy those interested in the field, the hypothesis is promoted to a "theory," and is added provisionally to mankind's beliefs and combined with the apparatus of deductive logic to suggest and to formulate further hypotheses.

It should be clear that definitions and classifications should be prepared and arranged to aid the process of drawing inferences and constructing verifiable hypotheses, i.e., they should have empirical

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[16] DR Scott was one of the more articulate advocates of welfare-accounting. "The procedures, rules and techniques of accounting must afford equitable treatment of all interests actually and potentially involved in the financial situations covered by accounts." "The Basis for Accounting Principles," ACCOUNTING REVIEW, December, 1941, p. 342. (Original all italics.)

[17] Bertrand Russell, *Human Knowledge, Its Scope and Limits* (New York: Simon & Schuster, 1948), p. 311. Those who are philosophically inclined may be interested in Russell's comments on the limits of empiricism as a theory of knowledge. "We cannot know the empiricism hypothesis to be true, since that would be knowledge of a sort that the hypothesis itself condemns. This does not prove the hypothesis to be false, but it does prove that we have no right to assert it. Empiricism may be a true philosophy, but if it is, it cannot be known to be true; those who assert that they know it to be true contradict themselves. . . . " p. 180. Some logicians do not admit inductive methods qualify as logic. "It would contribute to clarity and order of thought to have inductive logic completely disassociated with logic, to discard its misleading name, and to reorganize its contents by their incorporation into a more comprehensive study, the 'Methodology and Philosophy of Science.' "A. P. Ushenko, *op. cit.*, p. 139.

[18] " . . . the function of an empirical hypothesis is to provide a rule for the anticipation of experience. And this means that every empirical hypothesis must be relevant to some actual, or possible, experience. . . . " Alfred Jules Ayer, *Language, Truth and Logic* (New York: Dover Publications, Inc., 1946), p. 41. "If the predictions incorporated in the hypotheses are not falsified by the empirical evidence, they may be adopted by the theorist—but in a tentative manner—for they are always capable of being refuted by new empirical evidence. It has become customary to call such theorems or hypotheses operationally meaningful." Andreas G. Papandreou, *op. cit.*, p. 7. " . . . as a body of substantive hypotheses, theory is to be judged by its predictive power for the class of phenomena which it is intended to 'explain.' " Milton Friedman, *Essays in Positive Economics* (Chicago: University of Chicago Press, 1953), p. 8. "The problem of induction is . . . the problem of finding a way to prove that certain empirical generalizations which are derived from past experiences will hold good also in the future." Ayer, *op. cit.*, p. 48.

import and be "operations."[19] A definition results in some degree of abstraction and generalization, and thus can be used to shear off qualities that are not relevant for the purpose at hand. Thus definitions have been said to be "truncated descriptions." The economy that results from carefully prepared definitions and well-defined classes is present in both investigation and communication. For this reason and because accounting definitions are sometimes badly formed, the research accountant may often employ himself profitably in examining and reformulating definitions.

Inasmuch as research methodology is essentially scientific method, it should be clear that researchers should be aware of the limitations of the method. That scientific method cannot escape some degree of subjectivity becomes clear when attention is called to the need for "observation" at several stages in the process. The fact that the observer makes use of highly specialized instruments does not alter the subjective aspect of the problem. Even if an observer repeats the observation over and over, he can never be certain that he is not subject to hallucinations. Of course, the probability of his being free of such imagery may be established so overwhelmingly that his confidence is not shaken, and in most cases his observations may be checked by others. There is still the possibility that the new observers may also be subject to hallucinations, or if one embraces the solipsistic doctrine, the possibility that there are no others to observe. Scientists, however, have not only rejected such a possibility; they have postulated a trained observer, who as Russell has pointed out, is not unlike that lonesome and sometimes discredited individual—the economic man.[20]

The accountant, and especially the auditor, is interested in "verifiable, objective" evidence and should, therefore, have more than usual interest in the problems of inference, objectivity, and verifiability as they appear in scientific method. There is a widespread feeling that objectivity is a social phenomenon. "Objectivity is the agreement of intelligent persons as to the significance of independently observed data. . . ."[21] Such a position, as pointed out above, requires the postulation of other trained, intelligent observers and requires assumptions of interpersonal analogy and communication. These assumptions may be necessary for communication, but it is possible that an entire "science" could be constructed by a Crusoe. Such a lone individual could use the procedures of scientific method, construct a science, and verify its operation. In fact it may not be

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[19] The operationalist approach is an extreme application of empiricism, to the problem of definition, and is associated with P. W. Bridgman (*Logic of Modern Physics*, the Macmillan Co., 1928). Definitions according to this doctrine should be operational in the sense that they give the things that are necessary to measure concepts being defined. Measurement itself is conventional and operations are psychological activities. Notice the following operational approach to measurement: " . . . the problem of what is and is not measurement then reduces to the simple question: what are the rules, if any, under which numerals are assigned. . . . The isomorphism between . . . properties of the numeral series and certain empirical operations which we perform with the objects permits the use of the series as a model to represent aspects of the empirical world." S. S. Stevens, "On the Theory of Scales of Measurement," *Science* June 7, 1946. A less rigid approach considers an "operationally meaningful" definition as a list of instructions for identifying the concept. An outstanding treatment of definitional difficulties may be found in Carl G. Hempel, *Fundamentals of Concept Formation an Empirical Science* (Chicago: University of Chicago Press, 1952), pp. 1–20.

[20] "Our perceptive apparatus . . . can to some extent be ignored by the physicist, because it can be treated as approximately constant. . . . Science deals with these matters by assuming a normal observer who is to some extent, like the economic man." Bertrand Russell, *Human Knowledge, op. cit.*, p. 208. Notice also: " . . . if physics is an empirical science, whose statements can be confirmed or confuted by observation, then physics must be supplemented by laws connecting stimulus and sensation. Now such laws belong to psychology. Therefore, what is empirically verifiable is not pure physics in isolation but physics plus a department of psychology. Psychology, accordingly, is an essential ingredient in every part of empirical science, *ibid.*, p. 49.

[21] William J. Vatter, *The Fund Theory of Accounting* (Chicago: University of Chicago Press, 1947), Note 40 to Chapter V.

necessary for him to carry on the operations for verification; it may be sufficient that verification *could* be carried on by him. The profession of independent auditing, however, depends on the validity of interpersonal analogy and social agreement as to the nature of verification and objectivity.[22]

The entire accounting process, including the methods of auditing, should be investigated with all the intellectual tools available for the job. To neglect the contribution of historically more mature branches of knowledge is to squander intellectual resources. Within recent years we have made progress in applying statistical theory to verification, but the problems of evidence, proof, and verification are far from solved. Historians are especially concerned with these problems. Lawyers have given some attention to such matters. Psychologists and philosophers are concerned with interpersonal problems including those necessary for social living. The area of verification and evidence is only one of many that could be investigated with the aid of outside disciplines. Materiality is certainly related to significance and to statistics and psychology. In fact, most of the problems of science, other than those of procedure, are found in the field of accounting, and in addition, accounting may have some normative and psychological problems that the physical sciences do not ordinarily possess.

Behavioral Relations

Let us now turn to that part of accounting which is related directly to the psychological reactions of those who consume accounting output or are caught in its threads of control. On balance it seems fair to conclude that accountants seem to have waded through their relationships to the intricate psychological network of human activity with a heavy-handed crudity that is beyond belief. Some degree of crudity may be excused in a new discipline, but failure to recognize that much of what passes as accounting theory is hopelessly entwined with unsupported behavior assumptions is unforgiveable. Consider the following questions:

1. How do we decide which events are to be recorded and reported and which are not?
2. To what extent, if any, are potential embezzlers deterred by the necessity for collusion? (How can a system of internal controls be "reviewed" without some knowledge or assumptions at this point?)
3. How do employees react to idealized standards as opposed to attainable ordinary measure standards or to no standards?
4. To what extent are owners influenced by reported income in making: withdrawals? investments? labor commitments? (How can we discuss LIFO, appraisals, revenue recognition, and price-level accounting without first examining such matters?)
5. What are typical reactions to reports of liquidity and cash position? Markup and turnover?
6. To what degree are businessmen willing to substitute maintenance of control, stability of management groups, prestige from size or physical properties for incremental profits?
7. What influence on accuracy in recording and reporting do the techniques of internal control exert?
8. How do we decide on limits for the entity?

Within recent years there have been many serious attempts—mostly by nonaccountants—to study the reactions of individuals to various business conditions. Behavior patterns have been estimated or observed, classified, and on a few rare oc-

[22] Russell cannot accept the extreme operationalist tenet that "what cannot be verified or falsified is meaningless" but he concedes that science must accept analogy and go beyond experience. "We cannot enter into the minds of others to observe the thoughts and emotions which we infer from their behavior. We must, therefore accept analogy—in the sense in which it goes beyond experience—as an independent premise of scientific knowledge." *Op. cit.*, p. 193. Recently P. W. Bridgman has concluded that creative science must be "private" for the proof upon which it rests is private. *The Way Things Are* (Cambridge: Harvard University Press, 1959).

casions placed in business models.[23] The model-making process as it is now practiced in the social sciences is related to theory formation and consists of combining definitional identities with estimates of behavior, operating on the equations by mathematical or logical processes, and drawing probable implications that are consistent with the data. The construction of simple models and behavioral hypotheses that may be tested empirically need not be particularly difficult.[24]

It should be clear that valuable accounting research *can* be performed with nothing more than assumptions inserted for behavioral functions. The research accountant could take an extreme view and set up a narrow conception of accounting that abstracts from any personal reactions but the results would not be very useful. It is possible to adopt half-way measures, and, for example, confine the discussion of last-in, first-out to quantitative effects and assume away the indirect effects of any decisions that might result from variations in reporting. In this case the approach is so narrow that only *some* of the consequences are taken into consideration, and it is improper to generalize broadly from the results of such research.

It is possible to define accounting theory and set forth the limits of accounting research so that the results may be meaningful without being a professional psychologist or being committed to the stand that accounting is a sub-division of psychology. Of course, the accountant may *assume* behavior functions, and with these assumptions inserted into his framework he can arrive at conditional conclusions of the "if . . . then" variety. It is possible, for example, to prepare a model with different behavioral parameters and to predict the influence of a given course of action in different psychological settings. With some sets of behavior assumptions, no influence may be observed; with other reactions, the effects may be predicted within calculable confidence limits; in still others the assumptions may prove to be inconsistent and therefore no unique solution would be forthcoming. Such studies have unquestioned merit, for the fitting of relevant factors—making the model—helps the researcher and his fellow workers decide what behavioral studies should be undertaken, and in some cases they may indicate how such studies should be set up and conducted.

Perhaps the next simplest research procedure makes use of psychological studies prepared by others. This form of research may serve several purposes, including the valuable spade work of uncovering previous studies and calling them to the attention of other scholars. Most research directors would hope for analytical appraisals of such studies with comparisons, limitations, possible applications, and extensions or conclusions that may have escaped previous researchers. This kind of work is done to some extent by all effective teachers who assemble materials for advanced classes. To the investigator, an important benefit from library research is in the form of a better knowledge of the literature and a browsing acquaintance with related fields. Library theses may make substantial contributions to a field by coordinating and absorbing the work of scholars in related disciplines, and they may require unusual ability to analyze and synthesize a wide range of knowledge.

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[23] Mattessich has again performed a service by pointing out how definitional models may be combined with behavior assumptions to prepare accounting models. See his "Mathematical Models in Business Accounting," ACCOUNTING REVIEW, July, 1958, pp. 472–480. C. B. Allen has pointed out that accounting itself is a model in the sense that the accounts, reports, control devices are maps of events and transactions in the biography of the organization. "Introduction to Model Building on Account Data," *NACA Bulletin*, June, 1955, pp. 1320–1333.

[24] Accountants may profit from observing the formation and use of behavioral hypotheses in *Organizations* by James G. March and Herbert Simon (New York: John Wiley & Sons, Inc., 1958).

Investigators are sometimes able to expand or modify the original conclusions by effective criticism and by bringing to bear the specialized knowledge of their own field to form additional hypotheses and models.

The questionnaire type of investigation is somewhat removed from library research. The essence of this type of behavioral investigation is to uncover reaction patterns by recording what those who behave have to report about their own behavior. Again, these papers may be nothing more than tabulations or impressions from a few sparse statements. While it may be impossible to approach what we have come to think of as an integrated science by observing what people say about their own activity, it is possible to arrange the questions so that the more crude kinds of misinformation are detected and to apply the machinery of scientific method. Thus, the fact that some philosophers do not wish to use the term science to cover inductions made from the reports of others does not mean that such inductions are always unimportant or unreliable. (Witness the super-structure based on the testimony of dreamers!) Certainly much research now being carried on in schools of business administration is of this type, and considerable class time is given to the problems of framing and relating questions so that the consistency and perhaps the truthfulness of the answers may be appraised.

As one would expect, much of the important research in behavioral activity today is being carried on by having investigators observe more or less directly the reactions of individuals, or groups, or substitutes for individuals. Such reactions may then be compared with verbal reports, classified, and searched for uniformities or exceptions. Associative probabilities may be established, hypotheses formed, further extension of the tentative conclusions made, more complicated models manufactured, etc. For example, the formation of capital budgets may be observed. The factors entering the decision process may be tabulated and weighed for relative significance. The usual processes of subclassification, examination for missing influences, etc., may be applied so that variations in response may be isolated, and the influence of various factors appraised. The results may then be placed in logical or mathematical models, implications drawn, and future behavior predicted.

The accountant may object that this kind of investigation is outside his field of competence, and that he cannot do the work of researchers in related fields. It is increasingly clear, however, that research workers in *some* fields are going to furnish the information that society feels to be desirable. Complete abdication does not seem to be the answer. Sufficient knowledge to understand and actually conduct such studies is not an unreasonable requirement for members of the profession. Significant contributions by accountants are not too much to hope for.

Even with severely limited boundaries for the accounting field, some benefit may be expected from surveying and tabulating what accountants in practice are in fact doing. *Accounting Trends and Techniques*, a publication of the Institute, is the result of such research, and both the National Association of Accountants and the American Accounting Association conduct research at this level. The justification for such research comes, of course, from its expected usefulness to persons who are considered to have social worthiness at the time. In general this type of research belongs in the first stage of scientific method, the stage of initial observation and simple classification. Studies of this sort may be expanded to ascertain the degree of conformance at a particular date or the trend

of conformance to rules, conventions, principles, standards, or group pronouncements. The degree of variation in practice on various points may be measured and reported. Guides to action may result. For example, it may be possible with the aid of related studies to appraise the magnitude of the resulting turmoil in the profession if new conventions or regulations are introduced. We must be on guard, however, against assuming automatically that what is done in practice is correct and desirable and establishes a proper norm. There may be a tendency to make such an assumption and to let the solution of ethical and related value-judgment problems go by default. Those of us who are "majority conscious" may have a special weakness in this direction and may benefit from the following discussion of the ethical responsibilities of the accounting profession.

Welfare and Normative Responsibilities

The progress of the Age of Enlightment may have been due to a large extent to the separation of science (description, explanations, and prediction) from purpose. Once the interaction of physical events was divorced from the will of some mystical entity, research could take the form of observation, description, and prediction.

The field of ethics—normative behavior—is made up primarily of value judgments that are not subject to logical contradiction. It is desirable to emphasize this point because the accountant can not expect to derive the usual crisp benefits from the application of formal logic to the normative side of his work. Ayer has developed this theme in some detail:

> . . . it does not follow . . . that two persons cannot significantly disagree about a question of value, or that it is idle for them to attempt to convince one another. For a consideration of any dispute about a matter of taste will show that there can be disagreement without formal contradiction . . . it is not necessary to contradict anything that he asserts . . . since the expression of a value judgment is not a proposition, the question of truth or falsehood does not here arise.[25]

The positivist view asserts that we can argue effectively and logically on matters of fact that pertain to ethics but the validity of ethical principles must be condemned or praised "in the light of our own feelings."[26]

Let us now look at the influences introduced with the admission that the profession of accounting has been given some responsibility for helping preserve equity among groups by furnishing accurate, dependable information. It is a trite commonplace that accounting is a service activity, and only a few eccentrics would hold the view that society should subsidize accountants for accounting's sake or for the esthetic value of the product. In fact, it is argued that accounting not only should be useful to the group that pays the bill but should also have its procedures appraised by reference to some quantitative scale of social usefulness. Accounting is tinged by the public interest! This assumption is so obviously true that it becomes the basis for a theory of welfare accounting. There is more to accounting than measuring and reporting flows. We must ask what flows and for what purposes are the measurements to be used? The selection is not a capricious one, and vague references to usefulness are not enough. Spacek states: " . . . the [utilitarian] concept . . . means nothing

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[25] Alfred J. Ayer, *Language Truth and Logic*, *op. cit.*, pp. 21–22. " . . . if a man said that thrift was a virtue, and another replied that it was a vice they would not . . . be disputing with one another. One would be saying that he approved of thrift and the other that *he* didn't; and there is no reason why both these statements should not be true." *Ibid.*, p. 110.

[26] " . . . argument is possible on moral questions only if some system of value is presupposed. If our opponent concurs with us in expressing moral disapproval of all actions of a given type *t*, then we may get him to condemn a particular action *A*, by bringing forward arguments to show that *A* is of type *t*. For the question whether *A* does or does not belong to that type is a plain question of fact." *Ibid.*, p. 111.

unless the utility sought is specifically defined. Even erroneous accounting is 'utilitarian' to the unscrupulous."[27] Thus we see that a hierarchy of meritorious needs must be established and that some of these needs, e.g., those of unscrupulous individuals, may have negative value. We may ask whether even under ideal conditions it would be possible to satisfy the needs of all persons who might be socially worthy. With limited-purpose statements, conflicting interests, and the practical impossibility of preparing information suitable for every worthy consumer of information, it seems clear that the claims of some groups are to be considered more important than the claims of others. But who is to decide? What are the criteria for decision?

The potential embezzler needs a breakdown of the system of internal control. We may not wish, as a general policy, to encourage embezzlers, but this too is a value judgment, and it is conceivable that with slightly bizarre social conditions embezzlers might be more worthy than those whose funds are subject to embezzlement. The accountant might side-step the ethical problem by selling his "services" to the highest bidder, or he might emphasize those facts and opinions that are desired by the particular group that makes the loudest noise. This solution certainly does not lead to a profession but instead results in the abdication of social responsibility. If accounting is to be a profession, the accountant must look to the accepted social standard of the place and time and use existing social attitudes as they are expressed in the form of laws, customs, administrative decisions, religious edicts, and the like, as the basis for subjective decision.[28] Members of the accounting profession should sense and appraise the relative desirability or undesirability of certain demands by applying the customs and laws that guide the social group. Then with knowledge of the probable effects of certain lines of accounting action the profession can translate the general attitudes of society into accounting rules that will help accomplish socially desirable behavior and discourage undesirable behavior. The accepted body of accounting doctrine may, therefore, change radically from time to time, and leaders of the profession must be equipped with an understanding of social institutions sufficient to interpret intelligently the meaning of social trends and changes.[29]

This relativist approach to social value and the ends to be served by a profession has much to commend it over the inflexible dogma that asserts an immutable set of ethical values from an upper-directed source. The realization that accounting is directly related to a vital, changing social order should encourage meaningful research directed toward the place of accounting in this order. Blind faith in pronouncements given with the dogmatism of the Mosaic tablets or the Nephitian Plates should be replaced with intelligent inves-

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[27] Leonard Spacek, "The Need for an Accounting Court," THE ACCOUNTING REVIEW, July, 1958, p. 369.

[28] "... the utilitarian defines the rightness of actions, and the goodness of ends, in terms of the pleasure ... to which they give rise; the subjectivist, in terms of the feeling of approval which a certain person, or group of people, has toward them. Each of these types of definition make moral judgments into a sub-class of psychological or sociological judgments. ..." Ayers, *op. cit.*, p. 104.

[29] With this relativistic conception of value and this selection of criteria of worth, we might pattern a good part of research in welfare accounting along the following general steps: "(1) the highest conception we have, at the time, of the good life; (2) the highest adequacy of the proposed conduct (as against alternative proposals) to bring this highest good life to all on the highest conceivable basis of justice; (3) the moral obligation to accept the most adequate available conduct as binding and so to put it into operation. The state of the culture of any group will affect the moral conduct of the group." William H. Kilpatrick, "Philosophy of Education, from the Experimentalist Outlook," *Philosophies of Education*, (Chicago: National Society of the Study of Education, 1942), p. 50. This statement by the father of the "group orientation" approach to education and one of the leaders of the "frontier thinkers" shows both the strength and weakness of the relativist position.

tigation of shifting social attitudes. A study of history and social institutions with attention focused on trends replaces the accountant's traditional faith in balance and the correctness of arithmetic. Accountants *do* accept responsibility for helping to preserve equity among actual and prospective sellers, buyers, owners, creditors, workers, suppliers, and other parties whose interests are so often in conflict. Such responsibilities are implicit in accounting bulletins and releases. Constant review of such pronouncements in terms of social changes treats the statements as parametric expressions of social needs and affords a practical method for giving consideration to the ethical content of accounting.

We may conclude by asking again how research may be carried on effectively in the field of accounting. The quantitative effects of alternate courses of action must be studied. Definitions, hypotheses, and classifications can be improved. Help from the fantastic strength of logic, statistics, and mathematics must be sought. Possible behavioral patterns must be explored. All offer tremendous help to the struggling profession. Yet, this writer is committed to the doctrine that the *first* order of business in constructing a theoretical system for a service function is to establish the purpose and objectives of the function. The objectives and purposes may shift through time, but for any period they must be specified or specifiable. Once this first step is taken we have a framework that lets us investigate and conduct research in terms of carefully constructed objectives. When research is approached in this fashion, the objectives along with the usual logical apparatus become the deductive framework from which, by means of quantitative and behavioral relations, we may proceed to appraise the adequacy of the entire machinery of accounting and the consistency of its rules and procedures. For example, to argue in a vacuum that depreciation should or should not be recorded by a community hospital is a flagrant waste of intellectual efforts.

The benefits of scientific method cannot be seriously questioned, but scientific method cannot solve all problems of society. Ethics, with the seemingly outworn and currently unfashionable concepts of purpose and objective, is often considered to be a backward branch of knowledge. Yet the laws of civilized man—though far from perfect—are counted to be substantial improvements over jungle laws and other expressions of the survival of the fittest. Accountants may not be able to reshape the ethical thinking of the age, but they can make a small contribution by recognizing their social responsibilities, and building their practical structure to help fulfill these responsibilities. The most urgent field for accounting research may not be related to problems concerned with the efficient measurement of transaction flows unless efficiency itself is defined in terms of the accomplishment of socially worthy objectives. Which flows, then, shall we measure and which measurement scales and procedures shall we use?

REPORT OF THE COMMITTEE ON MANAGEMENT ACCOUNTING

A REPORT of the 1958 Committee on Management Accounting was published in the April, 1959 issue of the ACCOUNTING REVIEW. The announced purpose of this statement was to identify the nature, significance, and related applications implied by the term "management accounting," and to note some of the educational implications that should develop as a consequence. In this report, the Committee discussed the need for placing management accounting in its proper perspective in relation to the external orientation of many accounting activities. The 1958 Committee defined management accounting broadly as

> "the application of appropriate techniques and concepts in processing the historical and projected economic data of an entity to assist management in establishing a plan for reasonable economic objectives and in the making of rational decisions with a view toward achieving these objectives."

The Committee stated further that

> "It includes the methods and concepts necessary for effective planning, for choosing between alternative business actions, and for control through the evaluation and interpretation of performance. Its study involves consideration of ways in which accounting information may be accumulated, synthesized, analyzed and presented in relation to specific problems, decisions, and day-to-day tasks of business management."

The 1959 Committee has directed its efforts toward an amplification of this view of the nature and significance of management accounting by stating in more definite terms the functions to be performed by accounting in a business entity organized for profit, and by a listing of the major problem areas in which management accounting is of prime importance.

The principal objectives of a privately-owned business enterprise are to maximize long-run profits from the use of the economic resources under its control and to seek investment opportunities for profitable employment of additional resources. In view of these objectives, the principal responsibility of business management is the development of plans and programs that will effectively maximize profit and investment opportunities. Management, in carrying out this responsibility, must choose between alternative courses of action and, hence, must evaluate the profit potential of the more promising of such alternatives. Moreover, management's operating decisions must be properly coordinated and internally consistent in matters such as the types of products to be offered in the market, the prices and mix of those products, the adequacy of production facilities in terms of efficiency, capacity, and geographic location, the availability of suitable personnel, the selection of appropriate channels of distribution, and similar considerations. Finally, management must satisfy itself that its decisions and plans, when taken collectively, will produce an optimum long-run profit and investment result.

The role of management accounting is to provide the management of a business with analyses and evaluations to assist in the fulfillment of this basic responsibility for effectively planning and controlling profits and investments. It is a service which is oriented toward the evaluation of the financial soundness of the future operating plans and programs of the enterprise and the anticipated profit consequences of alternative courses of action.

In reaching decisions on the soundness or adequacy of plans or operating programs, it is essential that the effect of such plans or programs be evaluated in terms

of their probable effect on the costs, profits, assets, or returns to the enterprise. The accounting mechanism is the only means available for summarizing the effect on a business of all the diverse and complex factors which bear on a company's operations. The collective effect of these factors finds a common summary expression in the form of profit or cost results, asset investments, or rates of return.

Business management must be informed of historical costs and profits and the quality of production and sales performance so that it can identify the strengths and weaknesses of its present position and thus determine the magnitudes and priorities of the tasks that lie ahead. However, the principal focus of management must be on the problems of the future. The service of management accounting consists primarily of providing management with

(a) an orderly and detailed set of long-run and short-run financial plans which indicate the anticipated profit and investment results of the plans and programs of the business,
(b) detailed analyses of the profit or investment consequences that are likely to flow from specific decisions, and
(c) periodic performance reports covering all areas of responsibility.

The long-run and short-run plans and programs of each segment of the business represent performance objectives which provide the basis for projections of profits and asset requirements. The degree of detail with which these plans and programs are prepared may depend upon the time span involved. That is, plans and programs for the near term will ordinarily be developed in more detail than plans for the more distant future. They should, however, in all cases be in sufficient detail to provide understandable objectives for appropriate levels of management and a suitable basis for the measurement and evaluation of performance.

The management accounting function should include a financial review and evaluation of long-run and short-run plans and programs of each segment of the business to determine that they, when taken individually, represent sound, realistic, and competitive objectives, and, when taken collectively, provide a profit and asset plan consistent with the long-run objectives of the enterprise. After approval by management, these programs constitute the operating plan of the enterprise.

The review and evaluation of a proposed operating expense budget illustrates an application of management accounting. Such a review is designed to assure that comprehensive and detailed operating plans have, in fact, been developed, that such plans are consistent with other plans and programs of the business, and that cost and profit consequences of the operating proposals which underlie the budget are sound and financially attractive.

As circumstances change, it is necessary for management to re-evaluate plans or revise operating programs. Analyses of the probable financial effect of such modifications in plans or of choosing between alternative courses of action are essential tools in reaching a sound decision as to the future course of action of a business. Such analyses should show management the profit and investment differences that will result from selecting one or another of the available alternatives.

The extent to which the profit and asset objectives are met by each profit center should be set forth in timely reports which isolate variances from approved operating plans. They should indicate the point of responsibility for the variances and describe the factors that caused the activity to deviate from the approved plan. Performance reports should provide a feedback of information to assist in the rea-

sonable adjustment of plans and the development of new plans for the future. This feed-back should also aid in choosing among alternative courses of action to implement the plan, and emphasize problem areas requiring attention and further analysis.

Each of the functional areas of business, such as production, distribution, and finance, is directly involved in the development of plans and programs and in the modification of these plans from time to time as a result of specific operating decisions. Also they are directly interested in the content of the periodic performance reports that compare actual results with objectives. In each functional area there are numerous problems for which management oriented accounting is particularly needed. Accountants who serve business management should be familiar with these major problem areas and should actively participate in management by providing the financial evaluations that are essential in reaching sound decisions.

An outline of some of the pertinent problems in the three functional areas of production, distribution, and finance follows this paragraph. Other functions such as research and industrial relations might also be listed, but the three functions used embrace the activities in which accounting data are most relevant. Certain problems such as pricing, product planning, and facilities planning involve all three of the listed business functions. These problems and others of this sort have nevertheless been included under only one area although it is recognized that other areas are involved. The outline is not intended to be all-inclusive. It is designed as a general listing of the major types of business problems for which management oriented accounting data are essential.

Production Management

1. *Production Methods and Facilities.* Management accounting should provide incremental or differential cost data related to various alternatives for plant layout and methods of production. It should assist in the determination of the mix of manpower and machinery facilities to yield an optimum profit. Management accounting is essential for decisions related to plant size, location, and general capital budgeting. Management must determine its policy with regard to machinery and equipment replacement, considering both relative costs and productivity. It must also establish policy related to the acquisition of stand-by equipment and the provision of peak seasonal facility requirements. These problems require an understanding of fixed and variable costs and an evaluation of the risks attendant to sunk cost commitments for physical facilities.

2. *Production Control.* Production control problems such as the optimum loading of machines with varying capabilities, determining the number of work shifts in view of wage and efficiency differentials, calculating the costs of storage related to cost advantages of continuous operation, and the control of raw material and in-process inventories require specially tailored financial evaluations.

3. *Maintaining Production Efficiency.* Accounting information is essential in order to measure production efficiency in terms of departures from labor and machinery output standards and the relationship of performance to quality standards. The development and implementation of employee incentive plans to provide proper motivation is also an activity for which accounting information is essential.

4. *Utilization or Other Disposition of Waste and By-Product Materials.* Problems of whether to re-use, sell, or re-process waste materials and the disposition of by-products represent management decisions for which special accounting studies should provide assistance.

5. *Establishing Maintenance Policy.*

Management must decide on both the extent and quality of maintenance activities in view of the related costs. The management accountant should provide projections of profit effects of alternative policies in this area.

6. *Decisions to Manufacture or Purchase.* The make-or-buy problem is particularly dependent upon tailored accounting data which reflect the likely profit results of alternatives. It requires the accountant to sort out incremental costs in such a way as to project the consequences of management's proposals.

Distribution Management

1. *Pricing.* Accounting information is important in establishing pricing policy designed to recover average costs and in measuring the extent to which marginal cost business is developing toward full average cost recovery plus a profit. Pricing strategy designed to improve product mix or to secure special business may be aided by special accounting studies. The pricing of new products or the submitting of price quotations for special jobs is dependent, at least in part, upon cost projections developed by the accounting staff.

2. *Inventory Control.* The optimum size of any inventory requires knowledge of product lines and models by volume, location, desired service to customers, economic size of warehouses, economic ordering quantities, and size of territories to be served. All costs of providing services and of the alternative courses of action in connection with inventories must be known.

3. *Selection of Methods of Distribution.* The problems in selection of methods of distribution involve facilities, ways of selling, kinds of customers, and methods of delivery. Distribution facilities must be considered in view of relative costs of different kinds of facilities, optimum area to be serviced by each, and costs of various locations within the area. Ways of selling may involve exploring costs of and anticipated results from salesmen, manufacturers' agents, catalogues or other methods of contact. Kinds of customers involves selection of levels at which goods may be distributed, costs of services required at each level, and responsibilities to direct and indirect customers. Management accounting should provide useful historical and projected results of these many alternatives to assist in making decisions.

4. *Territory and Customer Selectivity Problems.* Selection of specific territories and customers to be served within a general classification requires cost studies of profitability as well as costs of developing marginal outlets to a profitable level.

5. *Planning Sales Promotion and Selection of Advertising Media.* Studies dealing with costs of alternative programs, comparing costs of various advertising media, and endeavoring to evaluate sources of business in relation to advertising effort where possible, provide valuable guidance to sales management.

6. *Product Planning Problems.* Management accounting should provide anticipated profitability of changes in existing products or introduction of new products. It should quantify the expected results of product plans in terms of sales volume, product mix, manufacturing costs, facilities and plant requirements, incremental design, engineering, tooling and launching expenditures.

Financial Management

1. *Financial Structure.* Accounting information is particularly important in evaluating alternative methods of capital acquisition. Evaluation of such alternatives and capital management as well, should involve consideration of such diverse problems as relationships of owner equities to debt, relative cost of capital, types of securities, issue costs, dividend policies, tax implications, depreciation as it affects funds, lease-backs, and financial leverage.

2. *Funds Management.* Utilization and management of the "liquid funds" of the enterprise requires careful planning and adequate control policies. Projecting cash sources and requirements is particularly important since it involves management action relating to such matters as credit policy, collections, dividends, payment of liabilities, investment of surplus funds, prepayments, and investment in inventories. Accounting information is of particular importance in assisting management to resolve the problems of fund planning and control.

3. *Organization Analysis.* Analysis and design of the organizational structure is necessary to facilitate planning and control. This problem involves consideration of such matters as decentralization vs centralization, profit center break-downs, and the assignment of planning and control responsibilities.

4. *Legal Requirements.* Accounting data are particularly useful to management in coping with problems created by certain governmental requirements. These problems relate to such matters as tax planning, tax policy decisions, compliance with tax and other governmental requirements, and evaluation of the effect that tax considerations should have on specific managerial decisions and general company policy.

The Committee believes that a significant need exists for a better and more general awareness of the proper role of management accounting in a well-managed business. This awareness may be appropriately encouraged by concern for problem-oriented accounting data in the functional areas of business as outlined above and by overall efforts in the fields of detailed financial planning, projecting consequences of specific decisions, and performance reporting.

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ON THE ECONOMICS OF BREAK-EVEN

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THE practical analysis of business financial problems appears well suited to the use of the propositions and theorems of theoretical economics. But the interplay of empirical problems and the theories designed for their explanation has not yet proceeded to very great lengths. There has, of course, been a considerable progress in theoretical analysis in this area during the last three decades. And in more recent times attempts have been made to achieve more satisfying general theories of aspects of business behavior. The analysis of the criteria for investment decision in the corporate enterprise, the theory of optimum capital structure, and the relative costs of differing forms of capital financing are important instances of this progress. But in the large area of financial and economic decision-making within which the enterprise operates from day to day, the marriage of the economists' concepts and the principles on which managements appear to act has been less successful and less harmonious. The economists and the businessmen have examined similar problems with the aid of differing categories of thought. There has been too little communication of ideas between them.

The purpose of this paper is to draw attention to one of the sharpest expressions of this cleavage of attitudes, and to advance some tentative suggestions for improvements in both analysis and application. This relates to the use by business of a method of cost-volume-profit analysis, and of pricing and volume adjustments, which is referred to as break-even analysis and which, *prima facie*, ignores the economists' generalized theorems of cost and revenue behavior. Other important issues which call for a similar new attack will not be raised in this paper, but many potentially fruitful lines of development may be discovered in the literature referred to in the attached bibliographical note. Our principal conclusions on the matter of break-even analysis are threefold:

(a) The components of the break-even charts as used in industry are in need of reinterpretation to bring them more closely into line with some significant suggestions of economic theory, and, at the same time, to clarify their true empirical significance.
(b) In the new analysis and reinterpretation a key role should be played by the cost accountant, and the advanced techniques of cost accounting should be used as the bridge between theoretical concepts and real-world analysis at this point.
(c) Economic analysis should now take up new lines of development, based principally on quantitative studies under the auspices of firms and industrial groups.

In the course of the discussion, some of the traditional assumptions of economic theory which inhibit its empirical applicability will be indicated.

II

The key role of the accounting function can be highlighted by noting some recent developments within the business enterprise. The traditional role of the accountant as the recorder of costs, expenses, incomes, and profits has been broken down in many businesses into several more detailed functions. Firstly, new approaches have been made to the analysis and fragmentation of costs into such categories as fixed, semi-variable, and variable. Semi-variable costs have been separated more carefully into their fixed and vari-

able components, and costs in general have been assigned more completely and in more detail to each of the various segments of the firm's operations. Developments in these respects have been most important for the refinement and the practical value of the break-even analysis. Details of alternative cost classifications need not be given at present, as the classifications themselves will change from one enterprise situation to another, and the basic dichotomy of fixed versus variable costs will be applied in as many different ways. One interesting refinement was suggested in this connection recently by K. J. Arkwright, writing in *The Australian Accountant*, December 1958. He suggests the following sixfold categories: (a) unitary variable costs, which increase by one cost unit with each increase of one production unit; (b) non-unitary variable costs, which change by more or less than one cost unit with each unit change of production; (c) cost of reserve capacity necessarily incurred to cater for short-term fluctuations in the level of activity; (d) irregular independent costs which are completely irregular in amount and in frequency of occurrence, for example losses arising from inventory revaluations; (e) periodical independent costs which are periodical in occurrence but not predictable as to amount, for example additional factory heating expenses depending on the severity of the winter; (f) perfectly fixed costs, or costs of being in business and which could be eliminated only by winding up the firm. Whatever methods of classification are adopted, however, the thing of practical importance is the assignment of cost elements to the various segments of the firm's operations, and for this purpose a segment can be understood as a product, a process, or a market area, depending on the characteristics of the business.

The second development of the traditional accounting function has been the construction of revenue, production-cost, and profit budgets as a background for pricing studies. Central to this procedure is the summation of segmentized costs, that is the various cost elements assigned to segments of operations as referred to above, for purposes of balancing volume, price, and profit variations in each such segment and in the enterprise as a whole.

Thirdly, there remains the more traditional accounting function of the recording of income and outlay. Depending on the stage of development of the functions already referred to, this traditional task involves increasingly also the comparison of historic income and outlay data with the budgeted standards implicit in pricing studies. Finally, these several activities are frequently co-ordinated in the hands of a financial manager for the determination of budgeted and actual on return investment. This final economic and financial datum forms the basis of advice to the directors or owners of the business on policy changes and on expansion and new financing. To this last mentioned and co-ordinating function is frequently added the supervision of the internal cash flow of the business, the financing of short term cash requirements, and the more fundamental task of advising on the timing and techniques of long term capital financing.

The significance of this increasing sophistication of the traditional accounting function is that it points clearly to more general theorems of business behavior. Firstly, the principal focus of attention is now forward-looking and prospective, rather than concentrated on historical data alone, thus opening new applications of criteria of policy choice and action; and secondly, the bases for behavior which are thus established permit clear applications of the marginal balancing of costs and incomes. This occurs via the allocations of revenues and costs, and via the comparison of segment marginal revenues and relevant marginal costs. The kernel of these new and embryonic de-

velopments in the business firm is thus the emphasis on incremental values of revenues, costs, and profits, and on the additional returns realizable from changes in production volumes. It is in the light of these developments that the soundness, strength, and relevance of the break-even analysis will be examined.

III

The break-even chart has a long history, as indicated in the literature referred to in the bibliographical note. Throughout the 1930's, while economists were developing the theories of the firm on the assumption of curvi-linear cost and revenue functions, as will be referred to briefly below, industrial consultants made large headway in an analysis of similar problems based explicitly on linearity assumptions. The break-even chart was a device of the industrialists, never at that time a tool of the economists. Perhaps the latter saw these charts, as Professor Machlup recently described them, as "nothing but glamorized multiplication tables." Joel Dean, on the other hand, has given the weight of his authority to the opinion that "break-even analysis . . . provides an important bridge between business behavior and the theory of the firm."

The typical break-even chart, as indicated in Figure 1, shows total dollar values on its vertical axis (total dollar values of revenues and expenses) and total quantities of output on its horizontal axis. Variations of the form may show on the X axis either output as a percentage of capacity, or total dollar values of sales. The last mentioned form is applicable for the analysis of the break-even situations of multi-product firms. The line OZ in Figure 1 indicates the total sales revenue derivable from varying levels of output on the assumption of a given market selling price. Variations in selling price will determine the possible slopes of this revenue line. The fixed costs of the enterprise are taken

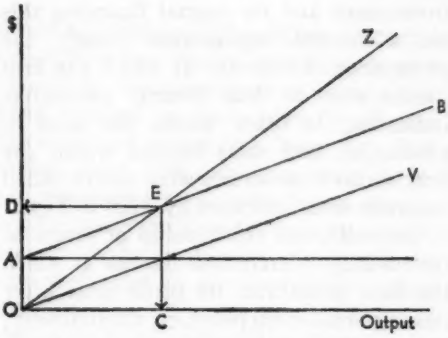

FIG. 1. Break-even chart.

as OA, and the variable costs are described by the line OV, the angle of incidence of which depends on the established relationship of variable cost per unit of output produced. The total cost line AB (parallel to OV) represents the summation of fixed and variable costs and indicates, for example, that at output and sales of OC, total costs and total revenues will be equal at CE. OC will therefore represent the enterprise break-even production level. If, as is useful in the case of multi-product analysis, the X axis is marked off in dollar values, the revenue line must take an angle of 45° and the unit selling price function is not implicit in the diagram. In other cases the unit selling price will determine the slope of the revenue line.

Before moving to consider the logical and empirical weaknesses of this popular device, a few of its principal implications can be noted. Firstly, the level of a single-product enterprise break-even point is dependent upon ***both*** the total revenue and the total cost characteristics. Given revenue possibilities, the level of production and sales at which an enterprise will break even will depend as much on the variable cost ratio as on the existing level of fixed charges. The level of E in Figure 1 will depend on the slope of AB as well as on the level of A. For the analysis of return on

investment and for capital financing this has a threefold significance. Firstly, the percentage of capacity at which the firm breaks even is thus directly calculable, indicating, in other words, the level of production and sales beyond which the firm begins to penetrate what can be called its profit area, indicated by *ZEB* in Figure 1. Secondly, the relationship of forces so far envisaged determines the *rate* at which the firm penetrates its profit area after passing break-even point, or, alternatively, the rate at which losses mount up at levels of operation lower than this crucial point. Thirdly, the degree of possible fluctuations in operating incomes which are thus envisaged, depending on the severity of what can be called the firm's operational leverage, clearly contains implications for the desirable and possible structure of the firm's capitalization, thus giving rise to greater or lesser degrees of financial leverage. The manner in which this last mentioned feature affects the residual owners' or stockholders' position will not be considered at present.

In the second place, the shapes of these revenue and cost functions, while they ignore the arguments for curvi-linearity which economic theory adduces, probably do have a good deal of empirical justification, provided one important assumption is made in their use. This is the assumption that the extent of possible movements along the respective aggregate functions is limited to a fairly narrow range of output variation. In such a case, however, the break-even lines do *not* become relevant for management policy decisions throughout their entire length, but only within the distances representing possible marginal fluctuations from the level of production and sales at which the enterprise is currently operating. Immediately this is recognized, however, and immediately it is seen that the break-even lines have empirical validity only within a narrow range of fluctuation from current output volume, the question arises whether the break-even diagram in this traditional form has any operationally significant meaning at all. For the break-even point itself, as drawn under these assumptions, has no meaning because the firm, in the normal course of events, will be endeavoring to operate *not* at break-even point, but at some volume level *above* break-even volume. The firm will, in other words normally endeavor to operate at a profit, which means, in terms of the traditional diagram as in Figure 1, somewhere in the profit area *ZEB*, or at some volume point higher than *OC*.

This does not mean that the break-even chart has no longer any potential usefulness, or that analysis of this kind can not be made to serve financial management objectives. But it does mean that a genuine reinterpretation of the break-even analysis is necessary, that a redefinition of its components and assumptions is called for, and that a recasting of the analysis should be made in terms of the assumptions which economic analysis has imported from its inspection of real-world enterprise situations. Before turning to the task of reinterpretation, it will be helpful to look briefly at the most relevant tools of theoretical economic analysis.

IV

Space does not permit an extended discussion of the economic theory of the firm. The literature referred to below, notably the works of Weintraub, Boulding, and Mrs. Robinson, set out the main points of the traditional theory. Some of the most relevant issues are summarized in Figure 2, in a form readily comparable with the break-even analysis in Figure 1.

Presented in this form, which depicts what may be called the break-even functions of the traditional theory, the total revenue and total cost functions, together with the assumption of given fixed costs, are directly analogous to the components

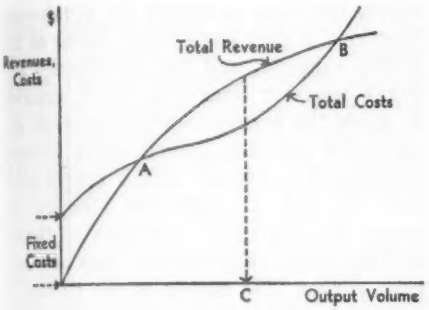

FIG. 2. Enterprise profit maximization.

of the business break-even analysis already examined. The analogue in the economists' tool kit is thus the *total* revenue and cost functions, and not the *average* functions in terms of which the behavior of the firm under varying competitive assumptions has frequently been analyzed.

It appears, therefore, that the functions of Figure 2, those of traditional economic theory, are formally similar to those of the break-even analysis in Figure 1. Only the shapes appear to differ. But this is not the whole of the contrast which has to be made, as will appear immediately below. A note on the shapes of the theoretical functions, however, is necessary at this point. Firstly, the total revenue function as drawn in this curvi-linear form depicts the fact that the enterprise is able to sell increasing quantities of output only at a diminishing selling price per unit, thus giving a total income which does not increase proportionally with output. This is the empirically valid assumption as to the market opportunities facing producers in conditions of what the economists refer to as imperfect or monopolistic competition. If conditions of perfect competition are assumed, on the other hand, indicating a situation in which an individual producer disposes of an undifferentiated product at a price set by the market, the total revenue curve will be linear through the origin in the manner of the total revenue function of Figure 1. This follows from the assumption that the individual producer's volume of the homogeneous commodity being supplied to the market by all producers is not sufficiently large to affect market price. The market price is therefore regarded by each producer as a parameter, or as a determinant of behavior which remains unchangeable for the length of time envisaged in his production policy decisions. Clearly, in the vast majority of non-agricultural, industrial enterprise situations this special case of perfect competition is not empirically significant. The literature cited examines fully the relevant and refined concepts of the elasticities of the functions and their sensitiveness to price and volume changes.

Equally important is the shape of the total cost function in Figure 2. The fixed cost component is taken as given in the same manner as in Figure 1. This simply indicates that a short period of time is being considered in which the capital equipment and fixed assets employed by the firm cannot be reduced or changed, and that output volume changes can be effected only by applying differing amounts of variable factors to the fixed factors already installed. In the very long run all factors are variable. In the short run some are fixed. The division between the two depends on the length of time under consideration.

The shape of the variable cost function, which again determines the shape of the total cost function, is the more significant component. This is determined by the so-called technological-economic "law of variable proportions," which states that as larger quantities of variable factors are applied to given fixed factors the resulting increase in total product, that is the marginal product, may increase for a short time but will ultimately diminish. Marginal costs per unit of output then rise rapidly. Instances of the practical reasons for this phenomenon will be familiar to

industrial managers. Thus it is seen that by combining these assumptions as to the shapes of the total revenue and total cost functions, the pure theory of enterprise behavior is able to make the following definitional statements: (a) the slopes of the total cost and total revenue functions indicate respectively the marginal cost of production at any given output level, and the marginal revenue derivable from any given level of sales. (b) The equilibrium condition of the firm, that is the condition under which profits will be maximized, is that marginal cost should be equal to marginal revenue, which is the same as saying that the slopes of the total cost and revenue functions in Figure 2 should be equal. This condition is satisfied at some point such as output volume *OC*, at which the profit maximization is indicated by the maximum vertical distance between the cost and revenue functions. (c) The enterprise confronts, therefore, not one break-even point but two, indicated on Figure 2 at points *A* and *B*. Point *A* is analogous to the break-even point in Figure 1, and point *B* derives from the technological-economic laws of diminishing marginal productivity on the cost side and diminishing elasticity of demand on the revenue side.

Immediately, therefore, the economic theory goes one step further than the traditional break-even analysis, in specifying not only a *break-even* condition, but also an *equilibrium* condition. It specifies, in other words, the position *within* the profit area at which the firm should endeavor to operate. Break-even analysis, under its traditional assumptions of linearity, is able to say only that the break-even point should be passed, and it implies, what is logically and empirically untenable, that the profit area will keep on widening as production volume expands.

Can we say, then, that the cost accountants and financial managers should simply endeavor to redraw the break-even functions in such curvi-linear forms as the theory suggests, and that empirically relevant behavior lines will result, suitable to guide the management in financial decisions? It may not, unfortunately, be very meaningful to assume such a simple solution, or such a qualitative identity between the aggregate functions of theory and the empirically relevant cost and revenue curves. The curves of the theory, it is important to note, are severely static in form. They show a series of possible equilibrium positions based on the assumption of successively different, but *stable*, output rates, and they postulate smooth, continuous and *reversible* movements between alternative output positions. The curves, in other words, admit of analytical manipulations in describing comparative static situations, and the shapes of the curves are in no sense envisaged as being alterable by the fact or degree of change.

If it is supposed that the break-even chart and the diagrams of theory *do* contain the same static assumptions, then clearly any number of alternative competitive assumptions and hypotheses can be examined and developed on the respective diagrams, for they then become in effect the very same thing. In such a case, however, we have stepped over from the field of hypothesizing about the conditions and behavior of industrial enterprises to imagining that we are actually *describing* enterprise situations. It is this gratuitous leap from hypothesis to imagined description that has invalidated much of the argument in this area.

V

Two important questions therefore arise at this point. Firstly, will the break-even lines, as applied to the analysis of practical problems, necessarily assume a linear form? And secondly, will a movement along the cost and revenue functions toward

higher output levels be necessarily reversible? Logical and empirical reasons suggest that the developments envisaged would involve *irreversible* movements along *non-linear* functions, and it is in the clarification of these probabilities that the cost accountants and the economists can most fruitfully look for common ground.

Consider the aggregate revenue function first. Here the empirically valid economic assumption can be adduced that the elasticity of demand will diminish as producers lower price in order to increase sales, and that a curvi-linear total revenue function will result. But there exist, probably, ranges of output in which producers can sell varying amounts without any price change, and the curvi-linear total revenue function can in such a case be looked upon as made up of a series of short linear sections, the slope of each of which indicates a certain market selling price. The actual revenue function most significant for business policy decisions might then be regarded as the locus of the mid-points of such a succession of short linear sections, the revenue curve thus describing a movement-path as output moves through varying volume ranges. This may establish an empirically probable function as a basis for business decisions, but the probability and ambiguity it contains result principally from the fact that movements along the function in any direction as volume changes may not be reversible over time if volume should return to a previous level. There is no reason to believe that a rise in price following a fall in price would necessarily move the volume of market demand back to where it was before the fall. Market structures and patterns of demand might conceivably change.

On the cost side, the economists' empirically valid assumptions should again be invoked, and the phenomenon of diminishing marginal productivity can be expected to give a curvi-linear shape to the total cost function. Here again the function may be translated from the usual static form to a dynamic form in which the cost levels and cost components change as volume changes, and in which the achievable costs may not be reversible over time as output volume fluctuates. But at this point the accountants' fragmentation of costs can be intelligently employed to separate out, and allocate to the relevant segments of the enterprise, the fixed costs and the fixed elements of semi-variable costs referable to them, and to *define* a residuum of unitary variable costs in such a way as to give once again a series of short linear total cost sections as output changes. The total cost function can then be regarded as a movement-path, or locus of linear sections, analogous to the construction of the total revenue curve. But this, of course, implies fairly minute degrees of cost fragmentation and analysis. Fortunately, this is beginning to be done and gives promise of being carried further with the aid of standardized procedures in industry. Obviously, the degree of precision and sophistication which is called for or desired must depend on the size and character of the undertaking concerned.

But there remains again the question of reversibility. On the cost side the evidence for irreversibility rests mainly in two kinds of factors: firstly, changes in efficiency in the use of variable factors (wastes, methods of use, technology, etc.) can not easily be conceived to be reversible over movements between output ranges; and secondly, there is no necessary guarantee that all fixed elements of total costs which were added as output rose will be found by management to be regulatable or dispensable as output levels move again in the opposite direction. Whether the irreversibilities in the break-even cost and revenue functions would exert favorable or

unfavorable effects on the level of the break-even point, or on the rapidity of penetration of the profit area, remains an issue for testing against empirical models.

Against the background of these arguments regarding the nature, shape, and reversibility of break-even cost and revenue functions, the familiar propositions depicted in Figure 1 call for reinterpretation. The analysis of industrial volume-profit experience and planning requires a more sensitive segmentized approach. Account should be taken of changes in the levels and shapes of the operative functions over as fine a variation of output ranges, or variations of intervals of time, as is administratively possible for budget and accounting purposes. It is not sufficient to argue, as is frequently done, that the case can be met by re-drawing the break-even chart of Figure 1 as often as budget changes are made, for this avoids the more fundamental issue of the nature and shape of the aggregate functions of Figure 1, and the extent of the output over which they have any empirical relevance or applicability.

It will be clear from the foregoing analysis that the conceptions which are here advanced of workable break-even models in industry have moved a good way from the naive and static models frequently relied upon in the firm itself, and which certainly have too frequently been used by the economist to caricature industry financial operations and management. The arguments which this paper has developed, however, set a program of research and development by the cost accountant, and suggest that economists now give their attention to examining the shape and stability of aggregate revenue and cost functions over time and over output ranges, applying their resources of statistical analysis to the reconstruction of empirical micro-functions and variables.

For the financial manager in industry the lesson of the analysis is that he cannot rely with the same degree of confidence on the more naive forms of his break-even charts. But the re-interpreted and reconstructed tools which are suggested to him by the economists and cost accountants should provide a firmer foundation for relevant policy decisions. This in no sense implies that the businessman should necessarily strive for the maximization of net revenue in the sense of the earlier static models of economic theory. But the indications of incremental costs applicable to production changes between or within, output ranges, such as is suggested by the analysis, should afford management clearer guidance as to the directions in which net incremental additions to income lie.

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CONCEPT OF DEPRECIATION ACCOUNTING HELD BY THE UNITED STATES SUPREME COURT

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WITH the recession of the 1957 recession, inflation has reassumed the prominent position it has held for most of the past two decades. Inflation, or the threat of inflation, will keep the depreciation problem in the forefront of those with which the accounting profession is concerned. Accountants have an obligation to explore all possibilities for the most useful methods of accounting for depreciation.

Accounting literature has been filled with treatises on the pros and cons of depreciation based on historical cost as opposed to depreciation adjusted by one of the many methods recommended. The various methods and procedures that might be used have been explored at great length. The positions taken by economists, accountants, managements, and labor leaders have been discussed. A topic that has not been given the attention that its importance merits is the position on depreciation taken by the Supreme Court of the United States. Any change in generally accepted procedures for accounting for depreciation will, sooner or later, be brought before the highest tribunal of our land. The present position of the United States Supreme Court on depreciation accounting and the historical development of its thinking provide needed background for much of the discussion that is being conducted on the important depreciation question.

Depreciation Cases Involving Valuations

The question of the proper basis for depreciation accounting has not been, in itself, the object of Supreme Court attention. However, over the past seven decades, many decisions of the Court gave some indication as to the Court's concept of the proper basis for depreciation accounting. The courts have spent much time debating depreciation problems in their consideration of cases involving valuations of various types and those involving determination of income. The valuation cases may be roughly divided into those that rise from property tax assessments, damage suits, fire insurance claims, and eminent domain cases. These cases involve assignment of a "value" to a property or business and have necessarily caused the courts to consider depreciation as it is related to the problem. These valuations have been made for the purpose of measuring the amount of some loss or injury, or of measuring the amount upon which an *ad valorem* tax should be based. The courts have tended to approve valuations based on estimates of replacement cost minus estimated depreciation or valuations based on current or fair market value. The attempt has been made to indemnify the owner, to make the owner whole in eminent domain and damage cases and to indemnify him to the extent contracted for, in insurance cases. The capitalization of earnings has not played a prominent role in the valuation type cases. These cases have not generally involved a determination of income and for that reason will be given little further consideration in this paper.

Depreciation Cases Involving Determination of Income

The second type of case, those involving a determination of income, offers more material for the purpose at hand. The

courts have issued a wealth of decisions evolving from determination of rate bases for public service companies, rate bases which will determine, or at least limit, future income. The income tax code and the excess profits tax laws have been prominent in court cases in which depreciation determination has been a vital factor, and cases involving payment of dividends may be considered as a third group of cases in which depreciation accounting questions have been important. As has been indicated, major emphasis will be placed upon this second type of case. It is important to examine the position of the court as taken in each of these three groups of cases which are concerned with income determination. The position of the courts has changed over the years and often their concepts of accounting and depreciation appear confused. There will be no clear and sharp delineation of an unwavering devotion to a single concept of income determination or to an inviolate basis for depreciation accounting. Yet a reasonably well-defined pattern can be found even though the accompanying directions are not as clear as one would wish.

Public Service Company Rate Cases

By far, the greatest number of United States Supreme Court decisions affecting depreciation have arisen from valuations of public service company properties which the American courts have long required as a test of the constitutionality of rates fixed by a legislature or a public service commission. Furthermore, the leading decisions of the Supreme Court in the field of rate making have been the subject of much controversy, study, and critical economic analysis.

The depreciation problem in rate making arises from the fact that valuation of properties on a replacement cost basis or on an original cost basis involves a determination of depreciation to be deducted in arriving at the base to be used for rate determination. And the rate base valuation also serves as the basis for depreciation accounting for the enterprise.

The present position of the United States Supreme Court is rather well-defined in the sense that the responsibility for valuation is fixed in the governmental regulatory commission under whose jurisdiction the enterprise comes. But in the sense of a specific method of valuation there appears to be no definite conclusion.

Development of the Court's Position

A detailed chronological development of the position of the Supreme Court since 1878[1] when the Court refused to approve the practice of establishing depreciation reserves through periodical charges to operating expenses to its present position follows such a well-traveled path that it is considered to be necessary to fill in only sufficient background to give the proper perspective to the present position of the Court.[2]

"Fair Value" Principle

The present position of the Court is given in the decision in *Federal Power Commission* v. *Hope Natural Gas Co.*[3] The Hope Case was the culmination of a series of cases beginning in 1939 which by 1944 had changed a line of decisions begun by the Smyth v. Ames decision in 1897.[4] The Smyth v. Ames decision established the "fair value" principle. How "fair value"

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[1] As late as 1878 the Court held that only such expenditures as are actually made could with any propriety be claimed as deductions from earnings. *United States* v. *Kansas Pacific Railway Co.*, 99 U.S. 455 at 459.

[2] Several detailed chronological treatments may be found. See especially John Bauer and Nathaniel Gold, *Public Utility Valuation for Purpose of Rate Control* (New York: The Macmillan Co., 1934): National Association of Railroad and Utility Commissioners, *Report of the Committee on Depreciation* (Washington: The State Law Reporting Co., 1943): and Public Service Commission of Wisconsin, *Depreciation* (New York: The State Law Reporting Co., 1933).

[3] 320 U.S. 591 (1944).

[4] 169 U.S. 466 (1897).

should be determined was never made clear by the Court nor was the term clearly defined. However, certain factors that must be considered were clearly set forth. The opinion of the Court, in part, is as follows:

"The basis of all calculations as to reasonableness of rates to be charged by a corporation maintaining a highway under legislative sanction must be the fair value of the property being used by it for the convenience of the public; and in order to ascertain that value, the original cost of construction, the amount expended in permanent improvements, the amount and market value of its bonds and stock, the present as compared with the original cost of construction, the probable earning capacity of the property under particular rates prescribed by statute, and the sum required to meet operating expenses, are all matters for consideration and are to be given such weight as may be just and right in each case."[5]

The Smyth v. Ames fair value principle established the function of the depreciation account for rate making purposes as the provision for the replacement of depreciable assets rather than the amortization of costs of the assets.

The fair value principle was strengthened as late as 1930 by the Court's decision in the *United Railway and Electric Company of Baltimore* v. *West.*[6] The Court held that the basis for depreciation accounting for rate making purposes should be present value or reproduction cost new rather than original cost. In support of this decision, Mr. Justice Sutherland, speaking for the Court, said:

"Manifestly, this allowance (depreciation) cannot be limited by the original cost because, if values have advanced, the allowance is not sufficient to maintain the level of efficiency. The utility is entitled to see that from earnings the value of the property invested is kept unimpaired, so that at the end of any given term of years the original investment remains as it was at the beginning. . . . This naturally calls for expenditures equal to the cost of the worn-out equipment at the time of replacement and this for all practical purposes means present value. It is the settled rule of this Court that the rate base is present value and it would be wholly illogical to adopt a different rule for depreciation."[7]

Mr. Justice Brandeis dissented in this case and proposed that depreciation accounting should distribute throughout the service life the only expense of plant retirement which is capable of reasonable ascertainment, the known cost less the estimated salvage value. Mr. Justice Brandeis so clearly set forth the perils and difficulties that attend the determination of value by the "fair value" principle and so ably presented the case for use of cost to owner as the proper basis for depreciation accounting that his dissenting opinion has been quoted perhaps more often than that of the majority of the Court.

The Los Angeles Gas Co. case in 1932 restated and re-emphasized the fair value doctrine.[8] The Court indicated that in establishing fair value the actual cost of the property is a relevant fact, but not an exclusive test; that the cost of reproduction is a relevant but inconclusive fact; and that the weight to be given to actual cost, to historical cost, and to cost of reproduction new is to be determined on the basis of the facts of the case.

Influence of Regulatory Agencies

The difficulties met in attempting to determine this vaguely defined "fair value" made the rate regulation of public service companies extremely costly in both time and money. The two decades after 1920 are well known as a period of initiation of stringent regulation of public service companies. The Federal Power Commission, the Federal Communication Commission, and the Securities and Exchange Commission were given extensive powers of

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[5] *Ibid.*, p. 468
[6] 280, U.S. 234.
[7] *Ibid.*, pp. 253 and 254.
[8] *Los Angeles Gas and Electric Company* v. *Railroad Commission of California*, 289 U.S. 287.

regulation that included specification of the system of accounts to be used. These regulatory agencies in an effort to find a firm ground upon which valuations could be made declared that accounts must show original cost to the owner who first devoted the property to the public service as well as the difference between that cost and cost to the present owner. Intense efforts were made to remove the effects of "write-ups" and over-valuations from the accounts.

The Move to the Original Cost Basis

These efforts of public regulatory agencies appear to be paralleled by a slow breaking of the bonds of fair value by the Supreme Court. In 1934 the Court in the *Lindheimer* v. *Illinois Bell Telephone Company*[9] case appeared to have overruled the "depreciation on fair value" rule delivered in the United Railway case.[10] Depreciation was defined as a cost of producing the service, an allowance for the consumption of capital in order to maintain the integrity of the investment in the service rendered.[11] Furthermore, the Court approved rates based on original cost. Mr. Justice Butler, in his concurring opinion, called attention to the fact that the approval of the straight line method calculated on cost less salvage was not in harmony with the decision in the *United Railway* v. *West* case which required that replacement cost be taken as the basis of calculation.[12]

A new test of whether rates were confiscatory was used. The ability of a company to earn generous dividends and to maintain credit standing was accepted as persuasive evidence of non-confiscatory rates. The same reasoning also appeared to be the basis for the Court's decision in *Dayton Power and Light Company* v. *Public Utility Commission of Ohio*, a decision handed down the same day as that in the Lindheimer case.[13]

The apparent crack in the armor of the "fair value" principle was temporarily repaired by the decision in 1935 in *West* v. *Chesapeake and Potomac Telephone Company of Baltimore*. The Court reverted to the Smyth v. Ames ruling and required that actual cost, reproduction cost, and all other evidences of value including price trends and levels be given their proper weight in reaching a conclusion as to valuation for rate making purposes. The Court held that where the present value of property is in excess of original cost, the company is not limited to a return on cost and conversely, if the plant has declined in value, the public should not be bound to allow a return measured by investment. The Court did recognize, as have most accountants, that "it would not only be unfair but impractical to adjust the value and the consequent rate of return to sudden fluctuations in price level."[14]

In 1936 the decision handed down in *American Telephone and Telegraph Company* v. *U.S.*[15] widened the crack made earlier by the Lindheimer decision in the "fair value" front. The Court approved the system of accounts prescribed by the Federal Communications Commission which prescribed depreciation based on original cost. Equally as important was the Court's reiteration that "a court cannot substitute its own discretion for that of administrative officers acting within their powers. Mere error or unwisdom is not equivalent to abuse of discretion. . . . What has been ordered must appear to be so entirely at odds with fundamental principles of correct accounting as to be the expression of a whim rather than an exercise of judgment."[16] The Federal Com-

[9] 292 U.S. 151.
[10] 280 U.S. 234.
[11] *Lindheimer* v. *Illinois Bell Telephone Company*, 292 U.S. 151 at 167.
[12] *Ibid.*, p. 176.
[13] 292 U.S. 290.
[14] *Ibid.*, p. 673.
[15] 299 U.S. 232.
[16] *Ibid.*, p. 236.

munication Commission had made clear its views that depreciation should be based on original cost and not on fair value or reproduction value or market value.

Federal Power Commission v. *Natural Gas Pipeline Company*

In 1937 the Court again did not disturb a valuation based on historical cost by a regulatory commission although the Court did indicate that reproduction costs should be given consideration.[17] By 1941 the Court appears to have accepted completely the original cost basis for depreciation accounting and for rate making. In its opinion in *Federal Power Commission* v. *Natural Gas Pipeline Company*[18] the Court gave a clear indication of this view.

"When the property is devoted to a business which can exist for only a limited term, any scheme of amortization which will restore the capital investment at the end of the term involves no deprivation of property. Even though the reproduction cost of the property during the period may be more than its actual cost, this theoretical accretion to value represents no profit to the owners, since the property dedicated to the business, save its salvage value, is destined for the scrap heap when the business ends. The Constitution does not require that the owner who embarks in a wasting asset business of limited life shall receive at the end more than he has put into it.... We refuse to make an allowance of amortization in excess of cost. To do so would not be the computation of a proper expense, but instead the allowance of additional profit over and above a fair return."[19]

The Court's opinion refers to two factors which make the decision for the original cost basis a little less clearcut. First, the Court obviously believes that the limited term of life of the enterprise is important although it does not make clear what its opinion would have been had the life been unlimited. Second, the Court refused to consider, as the Federal Power Commission urged, whether there could in no circumstance be a constitutional requirement that the amortization base be the reproduction value rather than the actual cost of the property devoted to a regulated business. Had this question been considered and a decision rendered for the Federal Power Commission, the acceptance of the original cost basis would appear to have been complete.

Present Position—The Hope Natural Gas Company Case

Many writers believe that the Court finally threw off the yoke of "fair value" in *Federal Power Commission* v. *Hope Natural Gas Company*.[20] The Court cleared up the point concerning limited life which was left undetermined in the Natural Gas Pipeline Case. The Court made it clear that the distinction is quite immaterial.[21] The Court again accepted original cost as a basis for rates and for depreciation. The Court said:

"Moreover this Court recognized in *Lindheimer* v. *Illinois Bell Telephone Company* the propriety of basing annual depreciation on cost. By such a procedure the utility is made whole and the integrity of its investment maintained."[22]

As to the second point left unsettled by the Natural Gas Pipeline case, the Court refused to place any reliance on reproduction cost now saying that it was "not predicated upon facts" and was "too conjectural and illusory to be given any weight in these proceedings."[23] It likewise refused to give any probative value "to trended original cost" since it was "not founded on fact" but was "basically erroneous" and produced "irrational results."[24] The Court went so far as to state that "the heart of the matter is that rates cannot be made to depend upon 'fair value' when the

[17] *Railroad Commission* v. *Pacific Gas Company*, 302 U. S. 5388.
[18] 315 U.S. 575.
[19] *Ibid.*, p. 592.
[20] 320 U.S. 591.
[21] *Ibid.*, p. 606.
[22] *Ibid.*, p. 606.
[23] *Ibid.*, p. 597.
[24] *Ibid.*

value of the going enterprise depends on earnings under whatever rates may be anticipated."[25]

In 1945 the Court in the *Colorado Interstate Company* v. *Commission*[26] and *U.S.* v. *New York Telephone Company*[27] reaffirmed the position taken in the Hope case.

The United States Supreme Court has thus, after supporting a fair value base for half a century, placed its stamp of approval upon the use of original cost as the basis for valuation of the properties of public service companies for rates and for depreciation. However, one cannot be certain that the Court will not approve nonconfiscatory rates based upon other than original cost if the various Commissions change their present policies. The Court, as has been indicated, is reluctant to substitute its own discretion for that of administrative officers acting within their powers.

It is interesting to note that, while the United States Supreme Court from 1897 until the late 1930's held that fair value should be the established basis for rate and depreciation valuation for public service companies, during the same period it consistently held that for income and profits tax purposes cost to the owner was the proper basis for depreciation accounting as well as for computation of gain or loss upon disposal. This difference is probably due to the fact that in the one case the Court was testing the constitutionality of rates while in the other it was guided by the rather detailed intent of Congress as expressed in the various income and excess profits tax laws. Professor Bonbright of Columbia University and a recognized authority in the field has expressed the opinion that in 1897 when the Smyth v. Ames decision was given, the lack of adequate records might have made the use of cost as illusive a base as was fair value.[28] The analogy drawn between the confiscation of property by eminent domain and the confiscation of property by improper rates is also in part responsible for the difference in positions taken by the Court.

Cases Involving Determination of Income for Income Tax Purposes

It must be recognized that the courts in ruling on matters relating to depreciation accounting and the determination of taxable income have been limited to the intent of Congress. The power to lay and collect taxes is conferred upon Congress by the Constitution of the United States and by the Sixteenth Amendment. Furthermore, with regard to the deduction for depreciation, it has been well established that the question whether a deduction from gross income shall be allowed in computing the income subject to tax is purely a matter of congressional grace. Deductions may be claimed only on such terms and conditions as Congress may prescribe. Congress, further, has the power to define current taxable income by changing the basis of property already in the hands of the taxpayer.

The propriety of making an allowance for depreciation for profits tax purposes was recognized by the Court as early as 1894.[29] In 1918 in *Doyle* v. *Mitchell Brothers*, the Court again recognized that income is something other than a return of capital and that there can be no income unless capital is maintained intact.[30] This opinion did not specify whether maintenance of capital intact meant maintenance in terms of dollars or in terms of purchasing power. However, it is generally accepted as referring to maintenance in terms of dollars.

There has been no deviation, in tax cases, from the original cost basis since

[25] *Ibid.*, p. 601.
[26] 324 U.S. 581.
[27] 326 U.S. 638.
[28] James C. Bonbright, *The Valuation of Property*, II (1st ed., New York: McGraw-Hill Book Co., Inc., 1937), p. 1097.
[29] *Reagan* v. *Farmer's Loan and Trust Co.*, 154 U.S. 362.
[30] 247 U.S. 179.

Eisner v. *Macomber*[31] in 1920 established that income, to be subject to taxation, must be shown to have been derived from capital and not merely growth or increment of value in investment. The opinion of the Court stated:

"Mere growth or increment of value in capital investment is not income. Income is essentially gain or profit, in itself of exchangeable value, proceeding from capital, severed from it, and derived or received by the taxpayer for his separate use, benefit, and disposal."[32]

This position that appreciation in value was not to be recognized for tax purposes was affirmed and strengthened in the La-Belle case[33] in 1921. *U.S.* v. *Ludey*[34] in 1927 established the present position of the Court on the basis for depreciation accounting for income and excess profits tax purposes. The Court held unequivocally to the cost basis. The opinion is quoted in part below:

"The depreciation charge permitted as a deduction from the gross income in determining the taxable income of a business for any year represents the reduction, during the year, of the capital assets through wear and tear of the plant used. The amount of the allowance for depreciation is the sum which should be set aside for the tax year, in order that, at the end of the useful life of the plant in the business, the aggregate of the sums set aside will (with the salvage value) suffice to provide an amount equal to the original cost. The theory underlying this allowance for depreciation is that by using up the plant, a gradual sale is made of it. The depreciation charged is the measure of the cost of the part which has been sold.[35]

The Court again specified that the cost of the property is the original cost to the taxpayer.[36] There have been other much quoted decisions that have affirmed the original cost basis but these cases add little to the position already defined.[37]

It might appear that there is an inconsistency in the position taken by the Court in the Hope case and that taken in these income tax cases. In the Hope case the original cost base approved was cost to the owner who first devoted the property to the public service. This rate base was determined in accordance with FPC policy. The Uniform System of Accounts Prescribed for Public Utilities and Licencees Subject to the Provisions of the Federal Power Act, 1936, provided for recognition of original cost and in definition 9, page 6, defines original cost as "the cost of such property to the person first devoting it to the public service." The Supreme Court also approved a rate base that took "original" cost into consideration in the *Federal Power Commission* v. *Natural Gas Pipeline Company*, 315 U.S. 575.

Rates established by the Federal Communications Commission similarly recognized original cost. Such rates were approved by the Supreme Court in *Lindheimer* v. *Illinois Bell Telephone Company Case*, 292 U.S. 151 and in the *American Telephone and Telegraph Company* v. *U.S.*, 299 U.S. 232.

In the income tax cases, the original cost base was cost to the present owner. The recognition of original cost as the cost to present owner is indicated in *U.S.* v. *Ludey*, 274 U.S. 295, Page 295.

"Under the income and excess profits provisions of the Revenue Act of 1916, as amended by the Revenue Act of 1917, in determining the existence and amount of profit realized from a sale of oil mining properties—land, lease, and equipment—*the cost of the property sold is the original cost to the taxpayer* (if purchased after March 1, 1913, or its value on that date if acquired earlier) diminished by deductions for depreciation and depletion occurring between the dates of purchase (or March 1, 1913) and sale."

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[31] 252 U.S. 189.
[32] *Ibid.*, p. 207.
[33] *LaBelle Iron Works* v. *U.S.* 256 U.S. 377.
[34] 274 U.S. 295.
[35] *Ibid.*, pp. 300–301.
[36] *Ibid.*, p. 295.
[37] *U.S.* v. *Safety Car Heating Company* 297 U.S. 88 (1939); *Detroit Edison Co.* v. *Commissioner of Internal Revenue*, 319 U.S. 98 U 943, *Virginian Hotel Corporation* v. *Helvering*, 319 U.S. 528 (1943).

Examination of the recognition of original cost both as cost to the owner who first devoted the assets to public service and as cost to the present owner indicates that the Court was not inconsistent. In the Hope case the Court recognized that the Federal Power Commission's system of accounts required segregation of cost to the owner who first devoted the property to the public service but the Court went to great lengths to explain that the difference between this cost and legitimate cost to the present owner would also be accounted for and amortized over the useful life of the property and charged against operations unless the difference should properly be eliminated. Few would quarrel with the Federal Power Commission or the Courts over their desire to eliminate improper write-ups of assets.

Additional light may be shed upon the Supreme Court's position by brief attention to bases other than cost that have been recognized. Certain assets may have, as their basis, their fair market value as of various specified dates. Other assets may have substituted bases. These bases are determined by the statutes and recognized by the courts. However, once the basis has been established, the Supreme Court has held that it is this established basis that may be amortized over the remaining useful life of the asset. Adjustment of this basis to compensate for fluctuating price levels has not been recognized.

The percentage depletion method permitted by the statutes and by the courts provides an illustration of a recognized departure from recovery of cost. It is possible and not unusual for a taxpayer to recover tax free, through percentage depletion, an amount greater than the cost of the property.[38] The statute ignores this fact that a taxpayer may recover a larger amount tax free through depletion than he could through a sale of the property and the additional deduction is allowed although the cost has been recovered.[39]

Percentage depletion was introduced by the 1926 Act as a substitute for discovery depletion, although discovery was not made a condition precedent to the allowance of percentage depletion.[40]

Discovery depletion had as its basis the fair market value of the property on the date of discovery or within 30 days thereafter.

Without further examining the historical background for and justification of percentage depletion, it may be said that percentage depletion is an example of recognition by the courts of an allowance based on other than historical cost. However, percentage depletion is based on gross income from the property and therefore contributes little to analysis of the Supreme Court's position with regard to the proper basis for computation of depreciation charges. Nevertheless, the fact that depletion charges based on a varying gross income are permitted by the statutes and recognized by the courts cannot be overlooked. It appears that bases other than the basis for recognition of gain, if established by Congress, will be recognized by the Court.

Cases Involving Legality of Dividends

The third group of cases under consideration is the group concerned with the determination of the legality of dividends. Unfortunately, there are no United States Supreme Court cases that are directly in point. The courts appear to be generally agreed that a realized gain resulting from a sale of fixed assets constitutes a surplus and profit available for dividends. With regard to unrealized appreciation there is

[38] Comm. Elliott Petroleum Corp., 82 F. 2d 193, 17 AFTR 595.

[39] Louisiana Iron & Supply Co., Inc. 44 BTA 1244.

[40] Jacob Mertens, Jr., *The Law of Federal Income Taxation* (Revised Callaghan & Company, Chicago, 1954), Vol. 4, Paragraph 24. 31a.

no such general agreement, and as to the treatment of depreciation for dividend purposes few precedents can be derived from the cases save the general principle that depreciation should be allowed for in estimating profit or surplus.

Some writers on the subject believe that the weight of court opinion is that unrealized appreciation of asset values is not available for dividends,[41] but they also point out other cases that appear to approve the declaration of dividends from unrealized appreciation. These differences arise, in part, from the diversity of the statutory provisions in the various states.

The United States Supreme Court case most often cited with regard to the legality of dividends is Eisner v. Macomber.[42] Here the Court said: "Mere growth or increment in value in a capital investment is not income; income is essentially a gain or profit in itself of exchangeable value, proceeding from capital, severed from it and derived or received by the tax payer for his separate use, benefit, and disposal."[43]

The statement by the Court would appear to be applicable only in those cases in which determination of income available for dividends is the question and would not appear to offer guidance where the question is one of capital impairment, balance sheet excess, or solvency. Nor is the case especially helpful in efforts to determine the proper basis for depreciation accounting when the legality of dividends is under consideration.

Numerous decisions of lower courts and state courts may be cited disallowing unrealized appreciation as a source of dividends,[44] but others may be found which approve payment of dividends from unrealized appreciation.[45]

In view of the present position of the United States Supreme Court on the proper basis for depreciation for rate making and income tax purposes, one might surmise that the Court would recognize cost to the present owner as the proper basis when the legality of the dividends depended upon a proper determination of income. One cannot be as certain, however, when the statutes set some standard other than determination of income as the test of the legality of dividend payments.

Conclusions

If one may generalize in the face of some diversity of evidence, it may be said that the United States Supreme Court has accepted original cost to the owner as an appropriate basis for the determination of income and for the calculation of depreciation charges. In accepting this generalization, however, diversity of opinions in dividend cases must be kept in mind. One must also recognize that the Court will not disturb the findings of the various Commissions. The Commissions are at present firmly committed to a cost basis but should they change, it appears not unlikely that the courts will approve other bases so long as they do not appear to be confiscatory.

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[41] Bonbright, *loc. cit.*, p. 922; L. L. Briggs, "Appreciation of Dividends," *Journal of Accountancy*, LIV (July, 1932), 30 and Perry Mason, "Profit and Surplus Available for Dividends," ACCOUNTING REVIEW, VII (March, 1932), 61.

[42] 252 U.S. 189 (1920).

[43] *Ibid.*, p. 207.

[44] Among those that may be cited are: *Kingston* v. *Home Life Insurance Co.* (1917) 11 Del Ch 258; *Hill* v. *International Products Co.* (1925) 220 NY S 711; *Coleman* v. *Booth* (1916) 268 M 064; *Southern California Home Builders* v. *Young* (1920) 188 P 585; *Berks Broadcasting Co.* v. *Craumer*, 52 A2d 571, 356 Pa 620.

[45] Among those that may be cited are: *Splitgerber Brothers* v. *Skinner Packing Co.* (1930) 228 SW 531; *Privat* v. *Grand Bay Land Co.* (1919) 41 SD 494; *Henry* v. *Wellington Telephone Co.*, 63 NE2d 233, 76 Ohio App. 77.

DEPRECIATION AND USER COST

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THE concept of depreciation is not always clearly defined or understood by economists and accountants. In general, if one surveys accounting and economics texts, it is found that depreciation is classified erroneously as a fixed cost. Often, in fact, the method applied is unstated, but subsequent discussion implies it to be straight-line, as if this were the only method of depreciation available. User cost, on the other hand, has been treated as a theoretical stepchild and for all practical purposes is neglected.

An attempt will be made here, first, to clarify the relationship between depreciation and user cost, and secondly, to present three applications of user cost. Depreciation will be defined as the systematic assignment of a capital expenditure to different accounting periods. User cost, on the other hand, will be defined as the expected change in the value of an asset due to use from the beginning to the end of some interval of time.

The method of handling depreciation varies with the accountant's purpose. In preparing financial statements, the accountant's concept of depreciation is *ex poste*, or backward looking, since it is usually based on original cost. However, when the accountant deals with such problems as the cost of a new investment, the accountant's concept of depreciation is *ex ante*, or forward looking.[1]

A hypothetical illustration is presented for purposes of clarifying the concept of user cost. A firm operates a truck which has an original cost of $1,000 with an expected life of ten years. The following assumptions are made now, but will be relaxed later: (1) obsolescence is non-existent; (2) the level of repairs is independent of output; (3) the rate of interest is zero; (4) the businessman has full knowledge of the future; (5) the price level is fixed.

For the financial accountant, the value of the truck at the end of the year will be diminished by $100, if straight-line depreciation is used. The amount of depreciation recorded is independent of the rate of use.

The economist approaches this problem differently. If it is expected that the truck will not be used, no depreciation will be recorded, and the value of the truck remains unchanged. On the other hand, if the truck is expected to be used at its normal rate, one-tenth of the economic value of the truck is lost and the balance sheet will show the truck at $900. User cost is $100. The difference between the expected value of the truck when it *is not* used, and the expected value of the truck when it *is* used is the user cost of the truck. User cost thus measures the foregone alternative of future use resulting from present use, e.g. use "today" precludes use "tomorrow."

In most cases, user cost is not single-valued, but depends on the level of output. For example, if the truck is used for 10,000 miles the loss of value may be $50; if the truck is used for 20,000 miles the loss of value may be $100. Marginal user cost (additional user cost resulting from an additional mile) can be expected to rise with increased output, since break-

[1] See, e.g. Carl T. Devine, *Cost Accounting and Analysis* (New York, 1950); J. B. Heckert and J. D. Willson, *Business Budgeting and Control* (New York, 1955); Fred V. Gardiner, *Profit Management and Control* (New York, 1955); Charles F. Schlatter and William J. Schlatter, *Cost Accounting* (New York, 1957).

downs become more common as output is increased.

The first assumption regarding obsolescence is now dropped. Depreciation resulting from obsolescence is a fixed cost, because it does *not* vary with output, whereas wear and tear depreciation resulting from use is a variable cost because it varies with output. The fact that the firm has a fixed number of trucks does not imply that the costs of the trucks are a fixed cost.

Polar cases may be cited to clarify this point. At one extreme, if the rate of obsolescence is zero, as perhaps with an electric generator, all depreciation from wear and tear due to use is a variable cost. On the other hand, one may visualize the case where wear and tear due to use is of no importance and obsolescence is the only factor at work, as with an auto die. In this case all costs are fixed.

Most cases probably lie somewhere in between these extremes. When capital consumption is the combined result of both wear and tear due to use and obsolescence, the user cost function is characterized as follows: from zero output to what is termed the "critical output," user cost is zero. In this range of output, obsolescence cost exceeds wear and tear cost and therefore the latter may be safely ignored as not being a true cost, since the date of capital replacement is not advanced.

While wear and tear almost always shortens the *physical* life of a machine, it does not necessarily shorten the *economic* life. If, for example, the hypothetical truck had a physical life of ten years, but is expected to be obsolete in five years, use which shortened the life from ten to five years would lack economic significance since there is no loss of value to assets.

When the "critical output" is reached, wear and tear cost is equal to obsolescence. When output exceeds the "critical output," wear and tear cost exceeds obsolescence cost. Only wear and tear which exceeds obsolescence cost is economically significant. If use of the truck is expected to shorten the physical life by six years, this does not imply that six years loss of economic value is involved. If, regardless of output, obsolescence would shorten the life of the truck by five years, then output which reduces the physical life by six years, indicates that one year of economic life is lost. User cost will equal the value of using the truck one year.

This type of cost function, which may be termed semivariable, is probably not uncommon. For example, a similar situation exists when production workers are paid a base wage and piece rates only come into play after some "critical output." At outputs below the "critical output," labor cost is a fixed cost. When the "critical output" is exceeded, variable labor cost is involved for wages based on piece rates in excess of the base wage.

The second assumption regarding repairs is now dropped. Repairs often vary with the use of an asset. Repairs of the capital expenditure type, e.g. those repairs which have a significant effect on the value of an asset by affecting its life or efficiency, must be allocated to future periods. Putting on a new body would be a repair of the capital expenditure type, since the life or efficiency of the truck will probably be extended. Replacing spark plugs, on the other hand, will have no significant effect on the value of the truck beyond the present period and may be written off as a current expense.

The definition of user cost is now broadened to include repairs of the capital expenditure type. When repairs are independent of the rate of use, user cost is: $V'-V$, where V' is the expected value at the end of the period when the truck is not

used and V is the expected value of the truck at the end of the period when the truck is used. When repairs vary with the truck's use, user cost is $(V'-R')-(V-R)$. R' refers to repairs that would be made if the truck were not used and R refers to repairs if the truck were used. When V' equals V, the additional repairs resulting from use are synonymous with user cost. Only when repairs are independent of use may one ignore them in the definition of user cost.

Repairs are often a method of forestalling capital consumption. When output is increased, the businessman might, for example, have the choice of keeping his repair bill on the truck constant and allow the capital value to decline by $20; or he may spend an extra $20 on repairs which would keep the capital value constant. In either case user cost is $20. Since capital consumption will advance the date of replacement, repairs may be thought of as a substitute for replacement.

The extent to which a firm pursues a policy of substituting repairs for capital consumption or replacement depends on the man-repair hours needed to substitute for replacement investment and maintain output [ton-miles in the case of a truck] unchanged (this is the economist's "marginal rate of substitution") as well as on the relative prices for repair hours and replacement. High truck prices may induce a firm to increase its repairs, and low truck prices to reduce its repairs. In any event, the age or efficiency, and therefore, the value of an asset, cannot usually be determined without considering the level of repairs. It is possible to invest or disinvest in fixed assets in the short-run by varying repair expenditures.[2]

It is now assumed that the rate of interest is positive. User cost will vary inversely with the rate of interest. When the interest rate is zero, user cost is the equivalent of the foregone future income resulting from use. When the interest rate is positive, the foregone future income must be discounted. The expanded definition of user cost is now:

$$\frac{(V'-R')-(V-R)}{(1+r)^n}$$

where r is the rate of interest and n is the period of discount. For example, if the rate of interest is ten per cent and increased use of the truck now is expected to involve a loss of $100 of income a year from now, the present user cost is $91. Low interest rates are associated with increased user costs. One may conclude that user cost will, other things being equal, be higher in a period of depression when interest rates are relatively low.

Because user cost is a discounted value, its magnitude may be considered too miniscule to be calculated. The additional cost of determining user cost may be excessive relative to the possible savings resulting from its computation. When interest rates are high, user cost will be relatively low and the horizon of the businessman (how far in time he deems it worthwhile to give his attention to) will be short. However, when interest rates are low, user cost will rise, and the horizon of the enterpriser will be extended. Of course, a reduction in interest rates may result in expectations that the interest rate will rise, and it is therefore possible that user cost will increase with a lower rate of interest.

The fourth assumption is now dropped and it is assumed that the businessman is faced with uncertainty. User cost is functionally related to anticipations formed in

[2] The repair-capital consumption relationship has a close kinship to Marshall's statement that the employer might find it to his advantage to hire high-priced labor because capital consumption will be minimized. Though higher labor costs are involved, these costs will be offset by the reduction in capital consumption. Alfred Marshall, *Principles of Economics*, 8th ed. (London, 1946), p. 549.

an uncertain world. If the businessman is bullish regarding the future of the trucking business, the user cost of the truck will rise; conversely, if he is bearish, user cost will fall. When the future looks bright, additional use of the truck will be considered to be costly, because the expected sacrifice of future income is high.

Uncertainty is not a sufficient reason for disregarding user cost. To argue against considering a cost because of uncertainty is to argue against considering all costs. For planning purposes all costs are *ex ante* or futuristic, and there inheres a degree of uncertainty in their computation. For this reason the enterpriser must be content with approximations. Given the expectation that the magnitude of user cost will be significant, an approximation is better than nothing at all. When the user cost function is uncertain, the "critical output" is not a unique output, but a range of output, with the range increasing with the degree of uncertainty.

The final assumption is released, and it may be assumed that the price level varies. When the price of trucking services or truck prices rises in the same proportion as the price level, user cost remains unchanged. If the price of trucking services or truck prices were expected to increase faster than the general price level, user cost would rise.

In summary, user cost measures the loss of an asset's value which results from additional use and varies with (1) wear and tear depreciation associated with use; (2) extra repairs associated with variation in output; (3) appreciation and depreciation which result from changes in expectations, interest rates, and the price level.

Three applications of user cost are developed to show the different types of problems that may be attacked when one employs the concept.

First, the problem of price flexibility.[3] Here a price is considered flexible if the rate of change in price resulting from a change in demand is relatively great. Thus, if one firm's price falls by thirty per cent and another firm's price falls by twenty per cent as a result of a similar change in demand, the former firm's price is more flexible.

In regard to the relationship between user cost and price flexibility, Joe Bain concludes that obsolescence is a factor tending to produce flexibility.[4] Thus the more rapid obsolescence is, the greater the share of the costs which are fixed for existing plant. Since only the variable cost element in depreciation must be recovered by price, it would be expected that price would be more flexible the more rapid the rate of obsolescence. Put another way, the more significant the magnitude of wear and tear costs (i.e. user cost), the higher is the lower limit to which price may fall, since these variable user costs set a lower limit to price.

Other cases may be cited. For example, if one firm's user cost function has a greater slope than another firm's user cost function, its price will tend to be more flexible. This is true as long as the firms are operating in the range of outputs at less than full capacity, but in excess of the "critical output." In this range, user costs are positive and would influence the flexibility of prices. A firm with a greater magnitude of user costs relative to total depreciation costs may experience greater flexibility of price than the firm with minor

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[3] For varying viewpoints see: Gardiner Means, "Industrial Prices and Their Relative Inflexibility," Senate Document 13, 74th Cong., 1st Session, Washington, 1933; K. Galbraith, "Monopoly Power and Rigid Prices," *Quarterly Journal of Econ.*, May 1936, L, pp. 456–75; E. S. Mason, "Price Inflexibility," *Review of Economic Statistics*, May 1938, XX, pp. 53–64; T. Scitovsky, "Prices Under Monopoly and Competition," *Journal of Political Economy*, Oct. 1941, XLIX, pp. 633–685.

[4] Joe S. Bain, "Depression Pricing and the Depreciation Function," *Quarterly Journal of Economics*, August, 1937 LI, pp. 714–715.

user costs relative to total depreciation cost. Both the *slope* of the user cost function and the relative *importance* of user costs to total depreciation are significant in producing varying degrees of price flexibility.

Two other cases may be cited. Firms which have differential rates of expansion in demand would reach their capacities at different times in a period of prosperity. In this case the magnitude of obsolescence loses its significance.[5] Finally, if the change in demand takes place in that range of output which is below the "critical output," user cost is zero and the varying importance of obsolescence is of no significance for the question of price flexibility. These last two cases are of some significance because the subject of price flexibility assumes new importance when the economy is experiencing mass unemployment or inflation.

The second application of user cost relates to price policy in imperfectly competitive markets. As defined by the economist, an imperfectly competitive market indicates that the firm is faced with a negative sloping demand curve. In this case different levels of output (and sales) are associated with different prices.[6] Because the value of "goodwill" varies with output, each change in price and output will involve a user cost of the asset called "goodwill." "Goodwill" is considered an omnibus asset which includes all the advantages of monopoly. The user cost of "goodwill" is the difference in the value of "goodwill" when output is not increased and the value of "goodwill" when output is increased.

A decrease in price will increase sales and output, but may also reduce the value of "goodwill." Customers may associate the lower price with a lower quality. In addition, "cut-throat" pricing may result in price wars with their attendant uncertainty. Since the value of "goodwill" diminishes with increases in output, user cost increases as output increases.

If buyers believe that the earmark of quality is that the firm is first in sales relative to its close competitors, a low price strategy may be called for. Since the value of "goodwill" increases with output, user cost is negative. The marketing of *Life* magazine and Ford cars illustrates this price policy.

Finally, a low price policy may be pursued in order to prevent the entry of new firms. Because of the entry of new firms, higher prices may involve a sacrifice of market position. Here again user cost is negative, since the value of "goodwill" increases with output. In the extreme case, price may be reduced to zero, i.e. samples are given out with the prospect of strengthening the firm's market position.[7] An alternative to price changes may be to vary advertising expenditures. Extra advertising linked with a price change might be considered a parallel to extra repairs of the capital expenditures type. The purpose of both types of expenditures is to increase the value of the firm's assets.

Other cases may be cited which point to the fact that the user cost of "goodwill" may at times not only be important, but may be one of the controlling variables in price strategy. Analysis of the firm in imperfect competition is incomplete and often misleading, if the user cost of "goodwill" is not recognized.

[5] This is the Keynesian bottleneck case, where some firms are operating at full capacity and are unable to increase output, while other firms are working at less than full capacity and output can be increased. J. M. Keynes, *The General Theory of Employment, Interest and Money* (New York, 1936), p. 300. Keynes indicates that marginal user cost will rise sharply when conditions improve and enterprisers become more optimistic. A rise in interest rates, however, which is associated with more prosperous conditions will work in the opposite direction and reduce user cost. See above, p. 7.

[6] It is assumed that changes in the quantity sold and output are closely correlated. In the very short period sales are usually made by reducing inventory and not by increasing output. Thus, this analysis applies mainly to the longer run.

[7] Marshall, *op. cit.*, p. 486.

The final application of the concept of user cost relates to agriculture. Farmers have to decide on the best rate of use of their land. To clarify this, we may indicate the nature of the case where the farmer has to decide whether to fallow his land. If the farmer uses the land in alternate years the land will have a different value than if the land were used every year. Using the following input-output relationship, the significance of user cost

ANNUAL INPUT-OUTPUT RELATIONSHIP

Input of One Acre	*Output of Wheat*
Planted in alternate years	110
Planted annually	100

becomes apparent. When the farmer fallows, one acre yields 110 bushels of wheat annually. In this situation an acre is planted in alternate years. On the other hand, if the farmer does not fallow, productivity on the land is diminished, the average annual yield being 100 bushels of wheat.

The user cost (i.e. depreciation of land) is the discounted value of ten bushels of wheat. If the interest rate were 10 per cent and the price of wheat were $2, user cost is $18.18, the discounted value of ten bushels.

This example abstracts from manuring costs. The Sanborn experiment[8] indicates clearly that the decline in the productivity of the soil is dependent on manuring practices. Manuring costs are very similar to repair costs with machinery. The life of the soil (the farmer's "machine"), is closely related to manuring practices (the farmer's "repairs").

Other factors complicate the picture.[9] Specifically, with fallowing, operating costs would ordinarily be lower because less land would be seeded at any point of time. Furthermore, crop failures are lessened as a result of fallowing. Finally, if a sufficient number of farmers shift from non-fallowing to fallowing, commodity and factor prices may vary.

The important point is that farmers and farm management literature do consider the user cost of production in their calculations. In the Sanborn Field experiment the following remarks appear to be typical of much of farm literature on the subject:[10]

"Corn and wheat grown continuously through 50 years gave only slightly lower economic returns than a rotations system where only one-half or one-third of the land is occupied by corn and wheat. However, ***this high return on the continuous corn or wheat plots has been at the expense of soil productivity.*** After fifty years most of the rotation plots are still producing fairly high yields while the yields from the continuously cropped plots will no longer pay expenses."

SUMMARY REMARKS

The above theoretical considerations suggest that some revision in present depreciation practices may be appropriate.

Wider application of depreciation based on output would approach measuring user cost more closely than the present methods in use. Most methods implicitly assume the absence of the business cycle or economic growth. Canadian-Pacific Railways, in basing depreciation on use, recognizes the importance of economic change.

Since user cost is closely linked with changing economic conditions, perhaps more frequent revisions of depreciation schedules are called for. The California Public Utility Commission suggests that annual revisions be made. When technological innovation is accelerated, the life of assets is shortened by increased obsoles-

[8] G. E. Smith, "Sanborn Field: Fifty Years of Field Experiments with Crop Rotations, Manure and Fertilizers," University of Missouri, College of Agriculture, Bulletin 458, December, 1942 p. 13.

[9] See: O. R. Mathews, "Place of Summer Fallow in Agriculture of the Western States," U.S.D.A. Circular No. 886, Nov. 1951 and O. R. Mathews, "Summer Fallow at Ardmore, South Dakota," U.S.D.A. Circular No. 213, Feb. 1932.

[10] G. E. Smith, *op. cit.*

cence. User cost is as variable as the underlying economic conditions which influence the value of fixed assets.

Break-even analysis is generally not clear concerning the nature of depreciation. Depreciation is usually considered a fixed cost. Yet consideration must be given to the fact that present use affects the future value of fixed assets, as well as income. Thus in trying to determine the cost of an additional work shift, for example, one must include the additional wear and tear on plant and machinery. Often because this is not done, the additional shift *appears* profitable, but is *in fact* unprofitable. Accounting information should attempt to estimate user cost in order to avoid such errors. Businessmen are not indifferent to the erosion of assets resulting from changes in production and there is little reason why accountants should be.

While straight-line computations of depreciation are precise, they are often irrelevant for making business decisions. An approximation of user cost would be preferable. It is true that "user cost is a concept widely known, little understood and almost never used."[11] This should be rectified.

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[11] A. D. Scott, "Notes on User Cost," *Economic Journal*, June 1953, LXIII, p. 30.

INPUT-OUTPUT ACCOUNTING FOR BUSINESS

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IN RECENT years attention has been directed to the formalizing of accounting systems through the use of mathematical models and concepts.[1] In addition, the integration and similarities of social and business accounting systems have been discussed.[2] In both cases, the relation between Leontief input-output analysis and the usual business accounting system has been indicated. Professor Mattessich specifically mentioned input-output analysis and its general relationship to conventional accounting systems.[3] Powelson also indicated the similarity between the two. However, to the best of my knowledge, a direct translation of a business accounting system into an input-output framework has not been made.

The purpose of this paper is two-fold: (1) To illustrate the relationship between input-output and business accounting by translating a conventional accounting system into a Leontief input-output framework with the use of actual accounting data; (2) to indicate how input-output accounting may be used as a tool for financial analysis and planning.

The data used in this study are the financial data of Swift and Co., as given in Moody's, for the years 1951 through 1957.

Input-Output Model

Leontief input-output analysis is a mathematical method which specifies the quantitative interrelationships of several variables. In essence, it is a system of simultaneous equations in which all variables may or may not be functionally related. If all the variables are functionally related, the system is called a "closed" input-output model. If at least one variable is not functionally related to the rest, i.e., it is determined outside the system, then the system is called an "open" model. Once the parameters of the system have been determined, the model is then used to investigate and analyze various operations of the system.

The usual input-output analysis specifies the interrelationships of various sectors of an economy.[4] Input-output accounting derives its name from the fact that the analysis relates the outputs of economic sectors to the inputs of economic sectors. In the usual closed models of the economy, each sector's output is functionally related to the inputs (purchases) of all other sectors (including itself). A two-sector closed model is given in (1):

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* The author is indebted to Robert Rebholtz and Charles Filice for their assistance in the initial stages of the study. He is also grateful to Professors Richard Mattessich and Harold O. Carter for their comments and suggestions on the completed paper.

[1] Richard Mattessich, "Towards a General and Axiomatic Foundation of Accountancy," *Accounting Research*, Vol. 8 No. 4, October, 1957, pp. 328–355. Richard Mattessich, "Mathematical Models in Business Accounting," THE ACCOUNTING REVIEW, Vol. 33 No. 3, July, 1958, pp. 472–481.

[2] Richard Mattessich, "The Constellation of Accountancy and Economics," THE ACCOUNTING REVIEW, October, 1956.

John P. Powelson, *Economic Accounting*, New York McGraw-Hill Book Company, Inc., 1955.

A. C. Littleton, "Accounting Rediscovered," THE ACCOUNTING REVIEW, April, 1958.

[3] Richard Mattessich, "Towards a General and Axiomatic Foundation of Accountancy," *op. cit.* p. 332.

[4] Wassily Leontief, *The Structure of the American Economy, 1919–1939*, 2nd Ed. New York, Oxford University Press, 1951.

W. Duane Evans and Marvin Hoffenberg, "The Interindustry Relations Study for 1947," *Review of Economics and Statistics*, Vol. 34, pp. 97–142, 1952.

Hollis B. Chenery, "Interregional and International Input-Output Analysis," In Tibor Barna, ed. *The Structural Independence of the Economy*, pp. 339–356. New York, John Wiley and Sons, Inc.

Harold O. Carter, *Regional Input-Output Analysis of Agriculture and Industry*. Unpublished Ph.D. thesis, Ames, Iowa, Iowa State College Library, 1958.

(1) $$X_1 = x_{11} + x_{12}$$
$$X_2 = x_{21} + x_{22}$$

Here, X_1 is the total output of sector 1, X_2 the total output of sector 2, and x_{ij} (i, j = 1, 2) the input or purchases of the jth sector from the ith sector.

A two-sector "open" model is given in (2):

(2) $$X_1 = x_{11} + x_{12} + Y_1$$
$$X_2 = x_{21} + x_{22} + Y_2$$

In this case, the X's and x_{ij}'s are interpreted as before, but the Y_i's ($i = 1, 2$) represent the "final demand" sectors which are exogenous to the system, i.e., they are determined by factors outside the system of equations. Y_1 is the "final demand" for sector 1 products and Y_2 is the "final demand" for sector 2 products.

In the accounting model, debits and credits correspond to inputs and outputs of the sectors. The input-output model would state that the debits and credits to all the accounts of an enterprise are interdependent and can be quantitatively expressed by a system of equations. Such a system is given in (3):

(3) $$X_1 = x_{11} + x_{12} + Y_1$$
$$X_2 = x_{21} + x_{22} + Y_2$$

In this system, X_i represents the total debit to account X_i during the accounting period, x_{ij} ($i, j = 1, 2$) represents that portion of the debit to account i which is credited to account j and Y_1 ($i = 1, 2$) represents the remaining part of the debit to i that is credited to those accounts independent of the system.[5] Although debits and credits are made to the independent accounts, these accounts are not considered functionally related to the rest of the system. This is an example of an "open" system. If this had been a closed system, the Y's would have been considered x's and another equation added to express the dependence of the Y's on the rest of the accounts.

The above is called the static input-output model because the system does not take specific account of capital formation. The above input-output model is a flow system expressing the interdependence of flows into and out of the respective accounts. It does not provide a picture of the actual level of the individual accounts at any one moment of time as a balance sheet would, but rather indicates the changes that take place in the system when the exogenous accounts are altered.

The most important assumption of input-output analysis is concerned with the relation between the credit to an endogenous account and the total debit to this account. This assumption can be expressed by the following equation:

(4) $$x_{ij} = a_{ij} X_j + c_{ij}$$

where a_{ij} and c_{ij} are constants.
This assumption states that each credit to a given account is some fixed proportion of the total debits to the account plus a constant error (c_{ij}).

In all empirical work, the additional assumption is made that c_{ij} is equal to zero. Therefore, a_{ij} can be measured from a single observation of the ratio between x_{ij} (the individual credit) and X_j (the total debit). The a_{ij} is usually referred to as an input-output coefficient. The a_{ij} then becomes

(5) $$a_{ij} = x_{ij} / X_j$$

Substituting equation (5), assuming c_{ij} is zero, into (3) and rearranging the terms gives:

(6) $$X_1 - a_{11} X_1 - a_{12} X_2 = Y_1$$
$$X_2 - a_{21} X_1 - a_{22} X_2 = Y_2$$

[5] The reader will note that the variables in equations (3) are not defined as analogous to the *meaning* of "input" and "output" of an accounting system. To be strictly comparable, the variables would have to be defined in reverse order, i.e., debits = inputs and credits = outputs. The variables were defined in the present manner in order to explicitly set forth sales (a credit) as the key element in the forecasting system.

or in matrix notation, $X-AX=Y$, where X is a vector of account debits, A is a matrix of input-output coefficients, and Y is a vector of exogenous accounts, as yet unspecified.

With specified exogenous accounts, Y_1 and Y_2, and the constant input-output coefficients, a_{ij}, equations (6) can be solved for the total debits X_1 and X_2. The solution, in matrix notation, is:

$$X=(I-A)^{-1}Y \tag{7}$$

The elements, A_{ij}, of the inverse matrix $(I-A)^{-1}$, are "interdependence" coefficients. These coefficients specify the total debit to account i which results from a unit debit to account j *and* a unit credit to the exogenous account Y.

Once the "interdependence" coefficients have been obtained, the system of equations may then be used to predict flows into and out of the various accounts which arise when particular levels of the exogenous accounts are specified. For example, specifying a particular value for vector Y in equation (7) results in a solution for the value of X in this equation. Thus, a total credit to account Y results in a total debit to account X of $(I-A)^{-1}Y$. The system also permits determination of the magnitude of the relationship among the various accounts.

The Swift Model

This particular study used four endogenous accounts and one exogenous account.[6] These accounts are:

1.0—Current and other nonfixed assets
2.0—Fixed assets—net
3.0—All equity accounts
4.0—Balance account[7]
5.0—Operations account[8]

The system of equations used is found in (8):

$$\begin{aligned} X_1&=x_{11}+x_{12}+x_{13}+x_{14}+Y_1 \\ X_2&=x_{21}+x_{22}+x_{23}+x_{24}+Y_2 \\ X_3&=x_{31}+x_{32}+x_{33}+x_{34}+Y_3 \\ X_4&=x_{41}+x_{42}+x_{43}+x_{44}+Y_4 \end{aligned} \tag{8}$$

In this system,

X_1 = the total debit to current and other nonfixed assets.
X_2 = the total debit to fixed assets including the depreciation account.
X_3 = the total debit to the equities.
X_4 = the total debit to the "balance account."
x_{ij} = that portion of the total debit to account i that is credited to account j, $(ij=1, 2, 3, 4)$.
Y_i = that portion of the total debit to account i that is credited to the "operations account," $(i=1, \ldots, 4)$[9]

Table 1 shows the debits and credits for 1955 in the input-output framework. The figure in each cell represents a debit to the row account and a credit to the column account. Thus, in 1955 Swift had a credit to the operating accounts and a debit to current and other nonfixed assets of $2,408,596,000. This was largely the sales figure for the year which is a credit to sales (operations) and a debit to cash or accounts receivable (current assets). The $2,400,478 figure in the first row and column largely represents collections of accounts receivable. In the normal account-

[6] This small number of accounts was used because the data were obtained from financial reports and consequently many of the transactions had to be arbitrarily assigned to various accounts.

[7] The "balance account" is a fictitious account which represents debits and credits to the balance of the accounts. For example, an increase in the balance of current assets from one year to the next is represented by a debit to the "balance account" and a credit to the current asset account. The net effect is that all account balances are transferred out of their accounts and into the fictitious "balance account."

[8] The "operations account" is a consolidation of the operating accounts normally found in a business accounting system.

[9] Thus, Y^1 represents the credit to operating accounts *resulting from a debit to current and other assets;* Y^2 represents the credit to operating accounts *resulting from a debit* to fixed assets; etc.

TABLE 1

INPUT-OUTPUT MODEL OF SWIFT & COMPANY ACCOUNTING SYSTEM FOR 1955
(Actual Data in Thousands of Dollars)

Credits / *Debits*	*Current & Other Nonfixed assets* 1.0	*Fixed assets net* 2.0	*Equities* 3.0	*Balance* 4.0	*Operations* 5.0	*Total Debits*
1.0 Current & Other Nonfixed assets	(x_{11}) 2,400,478	(x_{12}) 3,268	(x_{13}) 1,718,061	(x_{14}) 417	(Y_1) 2,408,596	(X_1) 6,530,820
2.0 Fixed assets net	(x_{21}) 36,900	(x_{22}) 9,687	(x_{23}) 993	(x_{24}) 10,645	(Y_2) 1,981	(X_2) 60,206
3.0 Equities	(x_{31}) 1,832,254	(x_{32}) 0	(x_{33}) 14,814	(x_{34}) 49,160	(Y_3) 0	(X_3) 1,896,228
4.0 Balance	(x_{41}) 31,097	(x_{42}) 27,491	(x_{43}) 1,632	(x_{44}) 0	(Y_4) 2	(X_4) 60,222
5.0 Operations	2,230,091	19,760	160,728			2,410,579
Total Credits	6,530,820	60,206	1,896,228	60,222	2,410,579	

ing system this would be a debit to cash and credit to accounts receivable. In the model, it becomes an element in the first row and column of the input-output matrix.

The small letters above the numbers indicate the position of the number in equations (8) and the relationship between these equations and Table 1. Since the operations account is the exogenous account, an equation representing row 5 in Table 1 is not included in the system of equations (8). It is assumed that the transactions (debits and credits) in the operating accounts are determined by such outside factors as the demand for the company's products, sales efforts, efficiencies in the operating plants, and other activities which are external to the system of accounts. The balance sheet accounts are assumed, however, to depend entirely upon changes in the operating accounts and interactions among themselves.[10]

From Table 1, the direct input-output coefficients, a_{ij}, can be computed.[11] These are computed by dividing the numbers in each column by the column total. These are the x_{ij}/X_j shown in equation (5). In order to obtain as much stability in the coefficients as possible, the actual coefficients used in the calculations were the simple means of the coefficients computed for 1953, 1955, and 1957. The actual coefficients are given in (9) which is system (8) with the a_{ij}'s substituted for the z_{ij}'s and the terms rearranged.

$$
\begin{aligned}
(9)\qquad & (1-.3693)X_1 - .0583X_2 - .8932X_3 - .3122X_4 = Y_1 \\
& -.0046X_1 + (1-.2146)X_2 - .0005X_3 - .2311X_4 = Y_2 \\
& -.2843X_1 - .0025X_2 + (1-.0071)X_3 - .4567X_4 = Y_3 \\
& -.0032X_1 - .3982X_2 - .0073X_3 + (1-0)X_4 = Y_4
\end{aligned}
$$

[10] Certain of the balance sheet accounts are also influenced by outside factors. For example, fixed assets are influenced by investment decisions which are independent of the system of accounts. Partial consideration of these decisions is obtained through the "balance account." A dynamic input-output model, however, would directly handle capital formation.

[11] See equation (5).

or in matrix form:

$$(10)\qquad \underset{(I-A)}{\begin{bmatrix} .6307 & -.0583 & -.8932 & -.3122 \\ -.0046 & .7854 & -.0005 & -.2311 \\ -.2843 & -.0025 & .9929 & -.4567 \\ -.0032 & -.3982 & -.0073 & 1.0000 \end{bmatrix}} \begin{bmatrix} X_1 \\ X_2 \\ X_3 \\ X_4 \end{bmatrix} = \begin{bmatrix} Y_1 \\ Y_2 \\ Y_3 \\ Y_4 \end{bmatrix}$$

Inverting the I-A matrix results in the following system of equations:

$$(11)\qquad \begin{aligned} X_1 &= 2.7166Y_1 + 1.3698Y_2 + 2.4609Y_3 + 2.2889Y_4 \\ X_2 &= .0233Y_1 + 1.4548Y_2 + .0243Y_3 + .3546Y_4 \\ X_3 &= .7889Y_1 + .6666Y_2 + 1.7257Y_3 + 1.1885Y_4 \\ X_4 &= .0237Y_1 + .5885Y_2 + .0300Y_3 + 1.1571Y_4 \end{aligned}$$

The coefficients of equations (11), A_{ij}, are called "interdependence" coefficients and may be interpreted as follows: a one dollar credit to operations *and* debit to current assets results in a *final total debit* to current assets of \$2.72; or a one dollar credit to operations *and* debit to fixed assets results in a *final total debit* to current assets of \$1.37.

The first transaction indicates Y_1 is equal to four dollars. The second indicates Y_2 is equal to two dollars. The third transaction indicates Y_3 is equal to one dollar. It is assumed that Y_4 is zero. Entering these figures into equations (11) gives (12):

$$(12)\qquad \begin{aligned} X_1 &= 2.7166(4) + 1.3698(2) + 2.4609(1) + 2.2889(0) \\ X_2 &= .0233(4) + 1.4548(2) + .0243(1) + .3546(0) \\ X_3 &= .7889(4) + .6666(2) + 1.7257(1) + 1.1885(0) \\ X_4 &= .0237(4) + .5885(2) + .0300(1) + 1.1571(0) \end{aligned}$$

System (11), the input-output system, specifies the quantitative relation among the four endogenous (balance sheet) accounts for *any* specified level of the exogenous account. It shows the way in which the balance sheet accounts are interrelated in the normal course of business operations. It presents a picture of the expected flows into and out of the balance sheet accounts for a given year.

For example, say company sales were expected to be four dollars for the year, an adjustment in the fixed assets of two dollars was to be credited to operations, and a decline in some equity account resulted in a credit to operations of one dollar.

Multiplying and adding the products gives the following *total debits* to the four accounts ($X_1, \ldots, X_4$):

$X_1 = 16.0669$ $\qquad$ $X_3 = 6.2145$

$X_2 = 3.0271$ $\qquad$ $X_4 = 1.3018$

In this case, a \$7 increase (credit) in the operations account resulted in a \$16 increase in current assets, a \$3 increase in fixed assets, a \$6 decrease in equities, and a \$1 debit to the total balance of all accounts. The net additions to or subtractions from the individual balance sheet accounts may be obtained by additional

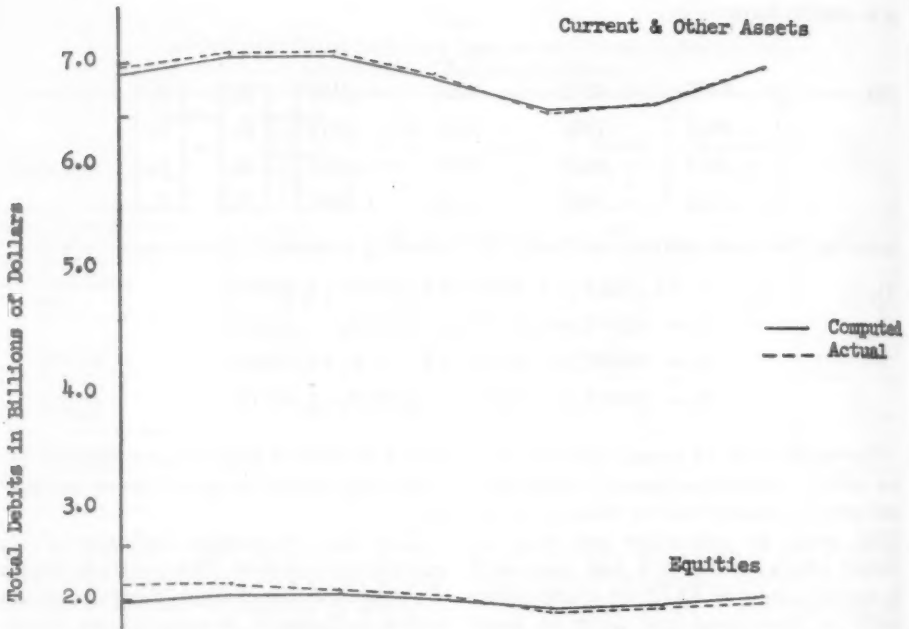

FIG. 1. A comparison of actual and estimated debits to current and other nonfixed assets and equities, 1951–1957.

computations with the original matrix. Thus, a picture is obtained of the account flows generated by a specified level of operations. These flows are the direct result of the original entry as well as the indirect result of the functional interdependence of the accounts as specified by the system of equations.

Stability of the System

In order to test for stability in the input-output coefficients[12] and to indicate the forecasting ability of the system, operating data for Swift & Company for the years 1951 through 1957 were entered into the system and the total debits to the four endogenous accounts obtained. These results were then compared with the actual data for the given period. The results are found in Figures 1 and 2. Figure 1 shows very little difference between the computed and actual debits to the current asset and equity accounts. The coefficients for these accounts appear to be quite stable from year to year. Figure 2, however, indicates much less stability in the balance and fixed assets coefficients. Part of the instability in these accounts results from unusual entries in the accounts, e.g., adjustments of prior years' transactions, and varying asset retirements. Table 2 shows the error in both absolute and percentage terms for 1955 and 1957. Very little error existed in estimating the 1955 data. But in 1957 there was a serious error in estimating the balance and fixed assets accounts.

[12] The coefficients which were obtained as simple means of the coefficients for 1953, 1955, and 1957.

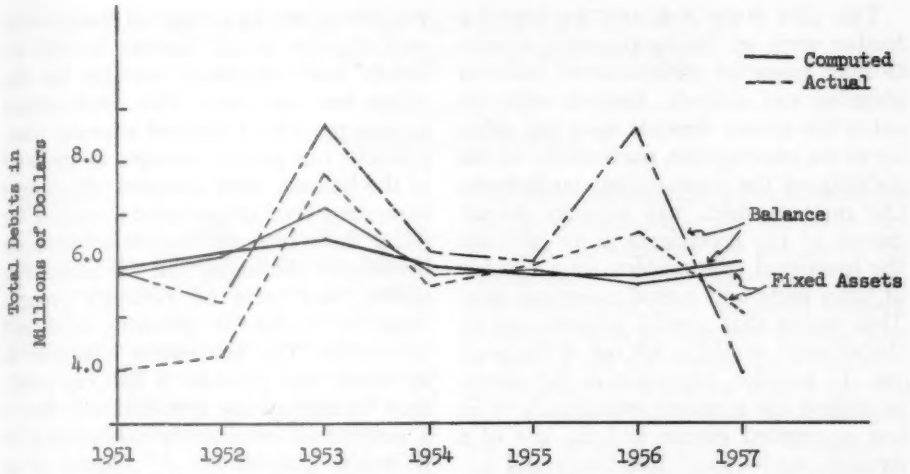

FIG. 2. A comparison of actual and estimated debits to fixed asset and balance account, 1951–1957.

Planning with the System

Once the input-output system has been obtained and found reasonably accurate in estimating flow values it can be used to analyze changes in the accounts which arise with changes in operating levels.[13] It thus becomes a planning device. For example, the levels of debits (or credits) to each account that are consistent with specified credits (debits) to the operating accounts may be desired. Also it may be useful to know what kind of capital flows will be generated by an expected level of sales. These and other changes in the accounts can be estimated by the equations. In addition, the financial position of the firm can be estimated for some expected level of sales. The changes in the account balances estimated by the system when added to or subtracted from the initial balances estimates the new financial position of the firm.

[13] See the example presented in system (11).

TABLE 2

A COMPARISON OF THE ESTIMATED AND ACTUAL DEBITS TO ACCOUNTS, 1955 AND 1957

Accounts	*Thousands of Dollars*			*Error as Per Cent of Actual*
	Estimated	*Actual*	*Estimated Less Actual*	
		1955		
1.0 Current & Other Nonfixed assets	6,545,910	6,530,820	15,090	.2
2.0 Fixed assets	59,003	60,206	−1,203	2.0
3.0 Equities	1,901,464	1,896,228	5,236	.3
4.0 Balance	58,252	60,222	1,970	3.3
		1957		
1.0 Current & Other Nonfixed assets	6,914,350	6,907,653	6,697	.1
2.0 Fixed assets	59,304	51,017	8,287	16.2
3.0 Equities	2,007,925	1,977,358	30,567	1.5
4.0 Balance	60,322	39,887	20,435	51.2

This pilot study indicates the need for further work on the input-output system to fully assess its usefulness for financial planning and analysis. Analysis with the aid of the system depends upon the validity of the assumptions, particularly on the stability of the input-output coefficients. One method which may improve the accuracy of the coefficients is to estimate the functional relationships for a number of years using only actual operating data. This means that special adjustments to the accounts would be left out of the analysis. In addition, expansion of the system to include the accounts individually or in less aggregated groups and the use of a dynamic model which handles capital formation may greatly increase the effectiveness of the system for financial analysis and planning.

Summary

As has been pointed out by other authors, business accounting systems are similar in nature to social or macro-accounting systems. In this case, business accounting data were put into a Leontief input-output framework and changes in the accounts predicted by the system. It was found that the estimated changes were very close to actual changes for two accounts and somewhat variable for the other two accounts. The input-output system provides a method whereby management can predict changes in the level of the balance sheet accounts which arise from some level of operations, analyze the dollar flows into and out of accounts, or investigate the impact on the accounting system and level of accounts brought about by changes in operating levels and conditions. The framework, common to all firms, also provides a uniform procedure for aggregating firm data and thus is a method of consistently establishing an inter-firm analysis for an industry or an inter-industry analysis for the economy. In order to fully assess the value of the system for financial analysis and planning, a more detailed and expanded system is needed. This would require analysis of the individual accounts and their relationship to each other under normal operating conditions. Changes in operating or accounting procedure as well as technological changes would influence the applicability of the system and the specification of the coefficients.

REASONS, PROBABILITIES, AND ACCOUNTING PRINCIPLES

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Introduction

IN THE July, 1958, issue of the ACCOUNTING REVIEW, Leonard Spacek advances the idea of an accounting court which he believes will establish authoritative accounting principles and which may, as a side issue, tend to demonstrate errors in reasoning. Such disclosures of errors in reasoning presumably would be accomplished by the pro and con arguments advanced by groups interested in establishing specific accounting principles, the analysis of such arguments by the court, and the rendered judgment. Whether or not this accounting court would establish authoritative accounting principles to the satisfaction of all accountants is an interesting question, but the suggestion that errors in reasoning may be demonstrated is also intriguing, for the history of Western thought contains many similar expressions of concern and instances of errors. What are the patterns of thought underlying expressed conclusions of various accountants and what tests may be applied to determine the validity of such conclusions? Can errors in reasoning be demonstrated with such force that accountants will agree as to the validity of such demonstration? If errors in reasoning cannot be demonstrated, can an accounting court establish principles?

The initial reaction to this question of patterns of thought is to give consideration to several methods described in various places; the inductive and deductive approach, and reasoning by analogy. If the pro and con arguments utilize either the deductive or inductive approach in an attempt to establish principles, it may be possible to demonstrate errors in reasoning and the pronouncements of the court may be valid. If analogies are employed, the results will not be conclusive and the proposed court can serve no useful purpose. If the principles are assumed to exist prior to the pro and con arguments (a necessary assumption for analogous reasoning), and the purpose of such court is to indicate whether or not a specific case is similar to other cases and, therefore, the pre-established principles apply, just as existing courts of law indicate whether or not cases under trial do or do not conflict with law, then, of course, the proposed court would not be establishing accounting principles. A constitution or a legislative assembly might establish such principles, without demonstration however of errors of reasoning, but the court would not. Since the function of indicating whether or not cases are in conflict with law rests to an extent with the I.C.C., the S.E.C., the I.R.S., and established courts of law, an accounting court would be of little value. Who would be the injured party to serve as a plaintiff?

Formal Logic and Principles

Formal logic, or syllogistic reasoning, was believed at one time to contain all elements of logic necessary for the elimination of error. The usefulness of the deductive form of reasoning in testing conclusions in accounting thought was developed by Leo A. Schmidt in his article, "Practical Uses of the Device of Formal Logic in Accountants' Daily Work," published in *The Journal of Accountancy*, November, 1949. Although such analysis is available, and errors in reasoning in its application

may be demonstrated, the results of the demonstration may not be accepted by those whose reasoning is subject to such question. The demonstration may be faulty, or a prior belief as to the validity of the conclusion may be sustained, even though the premise is in error.

Recent correspondence published in *The Journal of Accountancy* discussed some of the pros and cons of including depreciation in the financial statements of hospitals. The reasoning of the advocate for such inclusion could be restated as follows:

1. All hospitals are operated for profit.
2. Income determination requires matching of cost (and depreciation is a "real" cost) and revenue.
3. In order to determine the income of hospitals, depreciation must be included in the statements.

The error in such reasoning rests in the premise that all hospitals are operated for a profit. Professor Morey, among others, apparently holds the belief that many hospitals do not attempt to maximize profits. Actually, the conclusion does follow the major and minor premise, so that it is not proper to speak of an error in reasoning. The assertion that all hospitals are operated for a profit, may be true or false according to one's beliefs, but not because of the rationalization found in the correspondence, and there is no evidence that extended exchanges changed the beliefs previously held.

That deductive analysis is very useful in obtaining a logical consequence of a major and minor premise has been demonstrated for centuries, but whether such logical consequences can serve as accounting principles is highly doubtful. The major premise may serve as the accounting principle, but deductive reasoning starts with the premise. Even though Professor Schmidt advocated the use of formal logic, he did not demonstrate the derivation of even one general proposition through the use of this method, and therefore, he did not establish any principle of accounting. For the same reason, the proposed court cannnot use this form of logic in attempting to establish accounting principles, if the general proposition constitutes the principle to be established.

Induction and the Scientific Method

Francis Bacon's testing of logic by experience and experimentation is considered to be the beginning of the scientific method of establishing generalizations. Dewey has described this process as observation of phenomonae, formation of hypothesis to explain the causes of the effect, and, most important, the demonstration of the validity of the hypothesis by experimentation and/or further observation. The formation of the hypothesis corresponds to inductive reasoning while the demonstration is the means whereby errors in reasoning may be disclosed. Although the effectiveness of inductive reasoning and experimentation in contrast to the deductive method in establishing scientific principles is attested by the achievement of the past few centuries, it does not follow that the proposed court can utilize the same pattern of reasoning in an attempt to establish authoritative accounting principles.

Professor A. C. Littleton, in his monograph, ***Structure of Accounting Theory***, has developed the concept of accounting principles as consisting of inter-related statements of ends and means, with emphasis on the ***desirability*** of ends and the suitability of means. In an attempt to apply this "scientific" pattern of reasoning and to complete the concept of such principles, he points out that the test is one of careful observation of experience in "trying out an idea in practical use." Unfortunately, there are no means of measuring the performance of any practical application so that accountants working independently

of one another can agree with the measurement and thus the conclusion. Engineers may test materials by methods which can be duplicated by additional independent experiments but accounting ideas are not adaptable to experimentation. An opinion as to whether Lifo or Fifo is the better inventory method can be asserted by any one, but the diversity of opinions is evidenced in many published financial statements. Matching replacement cost with revenue (Lifo) "works" so that the test of "trying out an idea in practical use" would seem to validate replacement cost as an accounting principle. That replacement cost (to the extent of Lifo) is desirable is evidenced by its widespread use, and its acceptability is evidenced by the certificates of public accounting firms.

Tests of Conclusions

What might be called "the behavior pattern of income" has been utilized in several instances as another form of testing, but such tests are not the experimental tests appropriate to the scientific method. Using an illustration of straight line depreciation, a constant net income after depreciation, and a declining value of capital, the rate of return is shown by W. A. Paton as increasing each year.[1] In criticizing this method of depreciation, he points out that a proper matching of cost and revenue would produce a constant rate of return. If this, or any other, pattern of behavior of income can be accepted as an appropriate test, then various methods and allocations can be evaluated as to whether or not they produce the indicated effect. This "behavior pattern of income" technique is used by advocates of direct costing who point out that reported income should not vary because of changing levels of production, but should vary with changing sales volume. Realization as a test of revenue recognition derives its force from the thought that income should not be reported unless new and disposable assets have been received.

The above tests rest upon an acceptance of certain characteristics of income or beliefs as to the usefulness of certain ideas and do not constitute an experimental test of the suitability of a stated means. Actually these are the tests of deductive reasoning because Paton's analysis can be restated as follows:

1. The proper matching of cost and revenue will produce a constant rate of return.
2. Straight line depreciation does not result in a constant rate of return.
3. Therefore, straight line depreciation is less desirable than other methods.

If any deep conviction exists as to the validity of the premise, then straight line depreciation cannot be accepted as an appropriate method, but if doubt exists, then one might recognize that straight line depreciation is acceptable. The strength of the principle rests upon the strength of the belief in the premise, but such belief is not the product of deductive analysis nor necessarily of careful observation.

Beliefs and Probability

Neither deductive analysis, reasoning by analogy, nor inductive reasoning can be utilized by anyone to establish the truth or falsity of accounting generalizations, although strong beliefs can exist as to the validity of a particular assertion. However, beliefs as to the truth or falsity of a given proposition can be developed by a pattern of rationalization which utilizes the theory of probability although whether or not this pattern is satisfactory as a base for authoritative accounting principles remains a question.

For purposes of continuity of thought between the foregoing material on patterns of thought and the subsequent demonstration as to how probabilities may be used

[1] Paton, W. A., *Asset Accounting*, New York, The Macmillan Company, 1952, p. 270.

in establishing principles, it may be helpful to review some fundamentals of probability. If a coin is tossed, either a head or a tail will come up, with the probability, p, of a head being $\frac{1}{2}$ while the probability of a tail is $1-p$, or $\frac{1}{2}$. The sum of the two probabilities is obviously 1. The two events can be presented as $(\frac{1}{2}H+\frac{1}{2}T)$ or $(pH+(1-p)T)$. If a die is tossed, the probability that a specific number will come up is 1/6 while the probability of its failure is 5/6. This can be presented as $(1/6S+5/6F)$.

Suppose a game is developed wherein one die is to be thrown by a player. If a six is up, the player is to receive $3 and if a one comes up, he is to receive $2. For either a two or three, such player receives $1, while a four or a five is worth nothing. Each time he plays the game, however, he must pay the banker $1.50. Using the respective probabilities, and the value of each possible event, the value of such game can be computed as follows:

$$1/6(3)+1/6(2)+2/6(1)+2/6(0)=1.167$$

Since his expectations are considerably less than the payment, he knows (believes) that the game is a poor one.

This same probability theory is embodied in many managerial decisions and computations made by accountants to facilitate managements' choice of alternatives although, unfortunately, this theory has not yet been widely developed in accounting texts. That this theory underlies many decisions can be demonstrated by a hypothetical example.

Assume that the *XYZ* Company manufacturers the Gadget in which a Gismo is installed. The Gismo costs $10, but if and when a Gadget is returned because of a defective Gismo, the replacement cost of such will be $25 because of special handling and the necessary dismantling of the Gadget. Prior to the installation of such Gismo, these alternatives are available to management:

(1) If the Gismos are tested by random sampling, it is believed that quality can be controlled so that only 3% of the installed Gismos will be defective. The average cost of such sampling, per Gadget, is $.10.

(2) All Gismos can be tested and no replacements will be necessary. The average cost is $1.50.

(3) The manufacturer of the Gismo will guarantee that 90% will be good. The cost of replacing Gismos in excess of this 10% level will be borne by such manufacturer. If normal production of the Gadget during a period is 100,000 units, the results of the three choices would be established by accountants as follows:

	Sampling	*100% Testing*	*Guarantee of Manufacturer*
1. Cost of Gismos, 100,000 at $10	$1,000,000	$1,000,000	$1,000,000
2. Cost of Testing	10,000	150,000	—
3. Cost of Replacing Defective Gismos			
a. 3,000 at $25	75,000	—	—
b. 10,000 at $25	—	—	250,000
4. Total Cost of Operations	$1,085,000	$1,150,000	$1,250,000

Just as the outcome of a toss of a die was expressed in probabilities, so can these alternatives.

(*See tabulation on next page*)

	Probability	*Good Units*	*Probability*	*Defective Units*
1. *Sampling*				
a. Cost to buy and install Gismos		$10.00		$10.00
b. Cost of Sampling		.10		.10
c. Cost of Replacing Defective Units		—		25.00
d. Result of Choice	97%	$10.10	3%	$35.10
2. *Testing—100%*				
a. Cost to Buy and Install Gismos		$10.00		$10.00
b. Cost of Testing		1.50		1.50
c. Cost of Replacing Defective Gismos		—		25.00
d. Result of Choice	100%	$11.50	0%	$36.50
3. *Guarantee of Manufacturer*				
a. Cost to Buy and Install Gismos		$10.00		$10.00
b. Cost of Replacing Defective Units		—		25.00
c. Result of Choice	90%	$10.00	10%	$35.00

The value of each alternative is determined in the same manner as the value of the game, but since the values are costs, the most desirable alternative is the one with the least cost.

1. Sampling	97% of $10.10 =	$ 9.797
	3% of $35.10 =	1.053
		$10.850
2. 100% Testing	100% of $11.50 =	$11.50
3. Guarantee	90% of $10.00 =	$ 9.00
	10% of $35.00 =	3.50
		$12.50

If each of the above are multiplied by the 100,000 units, the results are the same as the first calculation. Since this example avoids the question of fixed and variable cost, it oversimplifies the problem, but it does demonstrate that the theory of probability underlies management accounting, and furthermore, that this theory offers a useful and reliable means of comparing alternatives. Having reviewed some fundamentals of probability theory, it may be well to demonstrate its use in establishing an accounting principle.

It is impossible to know as a certainty that either of the following two propositions is true:

1. Historical cost is better than replacement cost for the determination of income.
2. Replacement cost is better than historical cost for the determination of income.

It is possible, however, to apply the theory of probability in forming a belief as to which one is most probably true. For this purpose, an arbitrary value scale is adopted wherein the value of truth is 100, and the value of falsity is 0. The two alternatives can be expressed then as follows:

	Probability	*True*		*Probability*	*False*
1.	(p)	(100)	+	$(1-p)$	(0)
2.	(p)	(100)	+	$(1-p)$	(0)

The probability factor can be evaluated by examining the reasons which have been advanced to support these two alternatives, but this evaluation must be subjective. This leaves the question, can the subjective judgment of one, or several, individual(s) serve as a basis for authoritative accounting principles. At this point, a detailed restatement of pro and con arguments for Replacement Cost is not in order, but a brief summary is necessary in order to demonstrate how such reasons can aid in assessing the probability factor.

Advocates of replacement cost argue

that income should be measured in terms of disposable assets so that management will not be misled in establishing financial policies. But what is the probability that this is a valid reason? When consideration is given to the thought that accountants will assist in interpreting the statements, and may advise as to financial policy, it would seem that the probability of misleading management is very slight.

Some advocates advance the argument that statements based on historical cost do not show the current economic significance of the assets owned. This is good verbalizing, but it requires interpretation. One possibility is that the current economic significance of an asset is its value or opportunity cost. If the opportunity cost is the fact of current economic significance, and depreciation is based upon such, the charge might well be less than the amount based upon historical cost. A blast furnace may have a large historical cost, but its value, or opportunity cost outside the steel industry is slight. On the other hand, this current economic value may be the amount of current dollars required to replace the asset. Since the moment of replacement is generally in the future rather than the present, the assertion that such an amount has current economic significance is probably not true, except for the marginal firm in the competitive field. It seems doubtful that decisions of production, expansion, contraction, investment, consumption, or distribution of income, are influenced by the replacement cost of assets.

The objective argument for historical cost is credible, and therefore, the chance probability factor of 50% can be increased to 70%, but the reasons offered to support replacement cost as a general assumption for accounting theory are somewhat doubtful, and therefore, the probability factor for the second alternative is reduced from 50% to approximately 40%. The two alternatives, and the value of each are as follows:

1. Historical Cost
   $.7\,(100)+.3\,(0)=70$
2. Replacement Cost
   $.4\,(100)+.6\,(0)=40$

Since historical cost has a greater value, it is the better choice of the alternatives.

The arbitrary value scale is not necessary to determine which is the better choice, nor is it necessary to estimate a numerical probability factor, in order to compare the two alternatives. Since the reason for historical cost is credible, a quantity, x, can be added to its probability factor, and subtracted from the replacement cost factor. The results are:

1. $(p+x)T+(1-p-x)F-V_1$
2. $(p-x)T+(1-p+x)F-V_2$

In clearing the parenthesis,

1. $pT+xT+F-pF-xF=V_1$
2. $pT-xT+F-pF+xF=V_2$

and to compare, number two is subtracted after changing the signs, to give:

$$2xT-2XF=V_1-V_2$$

Thus the value of number one is $2x(T-F)$ greater than that of replacement cost. Since presumably Truth has a greater value than Falsity, the difference is positive, and alternative number one is the better choice of assumptions.

Conclusion

An accounting court is a dubious method of arriving at an acceptable principle, since there are no laws (principles of accounting) which are to be used as a guide (the problem is one of establishing such principles), no method of appealing any verdict, nor any means of changing laws to obtain equity. Since the professed purpose of the court is one of establishing principles, it would seem that its function

would be more legislative than judicial.

The objective of disclosing errors in reasoning is admirable, but when differences in opinions are due to value judgments as to the credibility of a particular reason and, therefore, the probabilities of an assumption, the objective may be impossible to achieve. What might prove useful for the best value judgment of all accountants is an extensive compilation and critical analysis of reasons that have been advanced through the years for the basic assumptions of accounting. The research organization proposed by Mr. Jennings and adopted by the American Institute of CPA's can be helpful in such compilation since the task would be substantial, but the value judgment of this Board should not be a substitute for that of each independent accountant. After all the hallmark of the profession is this independent judgment.

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AN APPROACH TO FORMULATION OF PROFESSIONAL STANDARDS FOR INTERNAL AUDITORS*

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ANY group that represents itself as engaged in professional activity has an essential obligation, to itself and to those it serves, to assure that the work and conduct of its members measures up to some established standards of competence. It is widely accepted that a professional man does not undertake to offer his services to others unless he has reason to believe that through education, training, experience, and personal characteristics he is adequately equipped to serve proficiently and constructively.

During the past 20 years internal auditors, spearheaded since 1941 by the Institute of Internal Auditors, have been crystallizing concepts, objectives, and responsibilities in respect to the practice of internal auditing. In spite of the impressive array of achievements by organized internal auditors toward achieving professional status there is still much work to be performed in other significant areas before internal auditors, as such, can qualify as a professional group comparable in stature and recognition to groups such as lawyers, engineers, physicians, and public accountants. One of these areas is the promulgation and voluntary assumption of codes or standards of professional conduct designed to raise the level and quality of services rendered.

Internal auditors, for the most part, currently operate under a heterogeny of standards applicable to public accountants, statements of responsibilities adopted by the Institute of Internal Auditors, divergent ideas of "standards" as contained in internal auditing textbooks and technical papers dealing with internal audit subjects, and local "house rules and practices."

The writer believes therefore that there is an urgent need for organized internal auditors to take definitive steps in formulating and adopting a code of uniform standards. The balance of this paper consists of a suggested approach to formulation of such professional standards.

GENERAL NATURE OF THE PROPOSED STANDARDS

The techniques and practices of financial auditing are used in a substantial portion of work performed by internal auditors, especially in verification, compliance, and protective aspects of services rendered to an enterprise management. Moreover, audit-type investigation, analysis, and reporting are used extensively in all phases of internal auditing including the non-accounting areas with which internal auditors deal. Accordingly, it is believed desirable to construct the standards along the general lines and classifications of standards promulgated by the only clearly recognized group most closely akin to internal auditors, namely public accountants. However, there must be a reasonably clear demonstration of significant differences in objectives of internal auditing, personal qualifications of internal auditors, and content of internal audit work as contrasted with comparable attributes with respect to the practice of public accounting. Otherwise, there would be small justification for proposing a separate set of standards for internal auditors.

It has been made abundantly clear in current accounting literature that internal auditing, although complementing ex-

* The views expressed herein are the author's and do not express an official position of the U. S. Army Audit Agency with which he is associated.

ternal auditing as a requirement of sound business management, is focused more nearly on direct service to management in planning, directing, and controlling its day-to-day operations.

In consequence of the trend in internal auditing toward what is currently termed management auditing, the writer believes that overall standards for internal auditors should be devised in the following general manner: (i) as a foundation, the framework and classification of standards adopted by public accountants should be used, and (ii) this framework should be supplemented by requirements for broader knowledge, training, and experience in the examination, evaluation, and report on the various management systems and controls employed in conducting the modern business enterprise.

The proposed standards will thus appear as judicious combinations of: (i) minimum standards promulgated by the American Institute of Certified Public Accountants, (ii) statements of responsibilities of internal auditors as adopted by the Institute of Internal Auditors, and (iii) additional guides and benchmarks singularly associated with the training and proficiency requisite to examining and evaluating the management planning and control of an enterprise.

Before passing on to further discussion of the proposed standards it is useful to observe that since an internal auditor offers his services, generally, to but one organization, it is not deemed essential to the development of the central theme of this paper to interject the problem of "licensing" usually associated with examination and testing of competency for professional status.

Proposed Personal or General Standards

Personal or general standards pertain to the technical and general qualifications, skills, and attitudes of an auditor. Among professional accountants and auditors, standards in this regard furnish broad guides covering: (i) training and proficiency, (ii) independence and objectivity, and (iii) professional care and diligence.

The minimum requirements with respect to public accountants are well known. Additional requirements or variations applicable to internal auditors are suggested as follows:

1. *Training and Proficiency*

The internal auditor's training should consist of at least a college education, or its equivalent, with courses arranged to train the student specifically for the practice of internal auditing. The core group of specialized courses might well include surveys of general and cost accounting, internal auditing techniques and practices, and allied business subjects such as industrial management, statistics, production control, marketing and distribution, business law, and economics. To round out the curriculum there should be an adequate portion of liberal arts or general education courses.

Theoretical training should be supplemented by a carefully chosen and directed body of diversified applied experience. The auditor working in the field of internal auditing must acquire in addition to the fundamental training and proficiency described above a broader training and experience in the fundamentals of a modern business enterprise.

More particularly, there is a need for the internal auditor to obtain the specialized knowledge and experience pertaining to the unique aspects and functions of the particular company or enterprise that employs him. He must, over a period of time, become reasonably well informed and professionally competent to examine and appraise such key points of enterprise management as objectives and policies, administrative organization, resources (personnel and facilities), methods and pro-

cedures, work programming and scheduling, and various control and evaluation-devices relating to work performance and control of funds and resources.

2. *Independence and Objectivity*

A professional auditor should maintain judicial impartiality or objectivity in all his examinations. This imposes a difficult burden on an internal auditor because he is an employee of the organization which he audits.

In order to assure that the internal auditor achieves maximum independence and objectivity commensurate with his responsibility the following conditions precedent should be established, (i) the principal internal auditor (and the internal audit function) should be responsible to an official in the organization who has sufficient rank and authority to assure a broad scope of activities for the internal audit group and adequate consideration of and effective action on the findings and recommendations made by the principal internal auditor and his staff, (ii) since impartiality and objective consideration are so essential to effective internal auditing, internal auditors should not develop or install procedures or systems, prepare records or operating reports, or engage in any other activity which they normally would be expected to examine and evaluate.

In general, the standard of independence requires that the auditor acquire and maintain those attitudes, and occupy such position and status with respect to the organization which he audits that his work can be carried out in a manner sufficiently impartial and objective to best serve the needs of the top management of the organization.

3. *Professional Care and Diligence*

The standard of professional care and diligence requires that the auditor perform his work with an awareness of the purpose of what he is doing, possess an appropriate mental alertness and inquisitiveness, and maintain a sense of responsibility commensurate with the professional status which he occupies.

Since care and diligence are expected from every individual who offers his services to another, the internal auditor, his employee status notwithstanding, should be held accountable for full observance of the same standard by which his contemporaries in public accounting are measured.

Recommended standards of Field Work

These standards pertain to the procedural guides and measures controlling the nature and extent of the evidence and facts to be obtained by the auditor in support of the findings, recommendations, and opinions which he expresses.

In respect to the advance planning of work and the supervision of the work of assistants it is to be expected that the same standard of competency will be observed by internal auditors as by their contemporaries in the practice of public accounting.

Special comments below are believed desirable with respect to other matters pertaining to field work performed by internal auditors.

1. *Study and Evaluation of the Existing System of Management Controls*

A survey or exploratory testing of the system of management controls applicable to the particular functions or operations subject to examination is an essential part of the internal auditor's program of examination. Because an effective internal audit covers the broad span of management controls there is a compelling need that the auditor make an early ascertainment of the following with respect to the organization he is examining, (i) those missions, programs, activities, and resources which are managerially significant

and for which management controls should vary directly in proportion to the materiality and relative risk involved, and (ii) preliminary evidence of the nature and strength of controls in order that he might determine the direction and extent of further inquiry and tests necessary to evaluate and report on the overall operating effectiveness of the system of management controls.

2. *Adequacy and Relevance of Information Supporting the Auditor's Opinions and Recommendations*

Since the overall objective of internal audit is the constructive assistance of all members of management in the efficient and timely discharge of their assigned responsibilities, it is incumbent upon the internal auditor that he obtain sufficient relevant facts about each component of the organization which he examines, carefully appraise and evaluate the evidence in light of his knowledge of the organization's mission, objectives, and policies, and make constructive suggestions and recommendations to responsible management.

Briefly, his surveillance, review, analysis, and test should lead him into, but not limit him to, (i) reviewing compliance with and appraising performance under policies, plans, and procedures established by various levels of enterprise management, (ii) examining financial transactions and related records and reports to the extent necessary to establish the general reliability of accounting, financial, and statistical data used by management primarily for internal purposes, (iii) reviewing the effectiveness of organizational control over and use of manpower, funds, and property resources, (iv) reviewing the effectiveness and timeliness in which management's policies, plans, and procedures are communicated to subordinate levels of the enterprise, and (v) reviewing the effectiveness and timeliness with which the results of operations and problems in application of enterprise policies, etc., are communicated upward to responsible levels of management.

Suggested Standards of Reporting

The internal audit report is the medium through which the internal auditor formally communicates constructive information and data to pertinent levels of enterprise management. It is also the primary device for revealing his ability to perform an audit assignment in a fully competent professional manner.

The following points are relevant to the skills and attributes particularly requisite of the internal auditor:

1. *Management Level to Which Reports are Directed*

The system of management controls applicable to an organization as complex and widely dispersed as the large scale modern enterprise is comprised of a voluminous, intricate, and interlocking set of policies, plans, programs, and other evaluation and control measures. In order that the various levels of enterprise management can be constructively informed on a timely basis of the efficiency with which management policies and plans are being applied, the internal auditor should address or transmit the results of his audit specifically to the highest proximate management level responsible for consideration of and action upon the facts and recommendations made by the auditor. Although practices in this regard are likely to vary from company to company, the most prevalent practice is for the audit report to not be addressed specifically to any one person. Usually the report, appropriately titled as to coverage, will be transmitted, with accompanying memorandum, by the Chief Internal Auditor to the enterprise's department head(s) or other official(s) primarily responsible or interested in the subject matter covered by the report.

2. *Clear and Adequate Disclosure of Managerially Useful Data*

It is imperative that top management receive timely and meaningful information which permits it to quickly judge the efficiency of the existing system of management controls, including the internal audit function. The internal auditor can invaluably assist each level of management by constructing his reports in a way to help responsible managers rapidly identify the heart of an operations situation. An internal audit report which is good not only in content but in clarity of expression, conciseness, attractiveness of presentation, and attention holding arrangements should do much to preclude managers having to pick their way through a maze of reported statistical and other data to find items of management significance.

Accordingly, reports should contain all relevant, significant information and data necessary for the addressee to understand the reported situation clearly, and should indicate prominently all unusual or defective situations that require management's attention. (Effectiveness in this regard will require a visualization on the part of the auditor of the responsibilities of the addressee and the kind of information the latter needs to properly discharge these responsibilities.)

The results of audit to be of optimum benefit to pertinent management should be communicated in time to be of material assistance to responsible officials in taking necessary corrective action. Consequently, interim reporting, oral as well as written, should be practiced as frequently as warranted by circumstances.

Summary

An important attribute of any group aspiring to professional status is the voluntary assumption of codes or standards of professional conduct. These standards are established as a means toward assuring competency in the performance of the services offered by the group, individually and collectively.

Internal auditors currently stand on the threshold of full professional recognition. The writer believes that one of the major conditions precedent to full recognition is formalization and acceptance of a code of professional standards by organized internal auditors.

Even a casual review of the current scene will reveal that internal auditors are operating under a potpourri of standards applicable to the practice of public accounting, "best practices" of individual large scale internal audit organizations, and divergent local rules and practices.

This paper has presented a suggested approach toward the formulation of professional standards for internal auditors. The proposed standards embody some of the fundamentals with respect to personal qualifications and quality of field work postulated by the national organization of certified public accountants. For the most part, however, the suggested standards focus upon requirements for the broad knowledge, training, and experience essential to a competent examination and evaluation of the complex of management systems and controls built into a modern enterprise.

The day has doubtless arrived for internal auditors to proceed with deliberate speed to consolidate ideas gained during the past two decades and commence the application of standardized measures of professional competency.

It can be argued persuasively that a codification of standards will contribute significantly toward facilitating the forward planning of organized internal auditors with regard to training, research, and other long range objectives.

CASH MOVEMENTS AND PERIODIC INCOME DETERMINATION

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THE determination of periodic net income is the most important function of financial accounting. In recent years the tenets of accounting income determination have been intensively scrutinized and re-examined as never before by both accountants and non-accountants. Although worthwhile progress has unquestionably been made, considerable confusion has been engendered by the piecemeal type of approach to the solution of accounting problems that has been employed by accountants and non-accountants alike. This approach, with some notable exceptions, has been standard in accounting for many years. For instance, the Committee on Accounting Procedure of the American Institute of Certified Public Accountants has never attempted to formulate a comprehensive theory of income determination, but has dealt with specific topics of current interest and controversy. The *Accounting Research Bulletins* issued by the Committee over the last twenty years irrefutably constitute a major contribution to the accounting literature, but the secondary consequences of the process that produced the bulletins have been largely overlooked. This secondary effect has been the development of that peculiar, but common form of myopia —the inability to see the forest because there are so many trees—which afflicts those who concentrate on details without occasionally stopping to focus on the entire picture.

The practical result of this nearsightedness is twofold: (1) most of the problems remain at least partially unsolved, and (2) the multiplicity of "generally accepted" methods confuses non-accountants. For example, in spite of all the effort expended, first-in, first-out and last-in, first-out are both acceptable procedures. Similarly, both depreciation based on cost and depreciation based on appraised value may be used. In both cases cited, the alternative procedures are so conflicting as to be absolutely incompatible; yet, current practice approves their simultaneous use, not only for similar firms, but within a single enterprise. The desire for a larger degree of uniformity in accounting, not only in method and procedure, but also in agreement among independent authorities has been one of the moving forces behind the search for better income determination methods. Progress in this direction is frustrated, however, by the problem approach. Less uniformity exists, and more unsolved problems in income accounting remain than ever before.

The basic step in the solution of income measurement problems is therefore the achievement of an understanding of the nature of income and of the income determination process. Accountants must comprehend the fundamental framework of income determination in order to solve specific problems in proper perspective. The basic nature of the periodic income determination problem may best be studied by eliminating the most disturbing factor,—i.e., uncertainty. Once the nature of the process is understood, we may judge any proposed solution to the problems of profit measurement. This is, of course, one of the functions of theory.[1] It

[1] Carl T. Devine, "Current Trends and Persistent Problems in Accounting Theory," in *The Controller*, Vol. X (July, 1942), p. 334. Cf. A. C. Littleton, *The Structure of Accounting Theory*, (Urbana, Ill.: American Accounting Association, 1953), p. 132.

permits the analysis of basic relationships under the assumption that other factors are held constant.[2]

Conceptually, the determination of income is relatively simple. Income is produced as a result of business operations. In barest outline, the process is as follows: (1) available cash assets are invested in the production process;[3] that is, cash outlays are made for productive assets—materials, labor, and other auxiliary goods and services; (2) the application of labor and the use of the productive facilities adds utility to the material, creating a product with increased economic value;[4] (3) the product is then converted from non-cash assets, and the cycle begins again. If the utility added is positive, the resulting cash balance will be larger than it was before the investment was made. The conversion of cash assets into real or earning assets is known as an outlay; the conversion of real assets into cash assets is known as a revenue. The difference between the revenue and the outlay for a given investment is its profit or loss.[5]

The problem of accounting is not, however, the simple measurement of the difference between total revenue and total outlay over the life of an investment, but that of measuring the difference between revenues and expenses for a given segment of that life. Modern accounting breaks up a continuous stream of business activity into artificial segments known as accounting periods. This operation is designated as periodic income determination.

This problem of periodic income determination is inseparably connected with that of property valuation: "the problem of allocating the total profit of an enterprise over the years of its existence and the problem of estimating the value of the enterprise at any one moment of time are not two problems but merely different aspects of a single problem,"[6] for "all the various methods of valuation, whether used by accountants or not, are based on various methods of allocating profit."[7] The value of a non-cash asset is a combination of cost and allocated profit, and may be stated as follows: "the total capital invested up to any date may be defined as the sum of outlays incurred and profit allocated, less the revenues received, before that date."[8]

The following simplified illustration will demonstrate the relationships involved:[9]

A company is organized to purchase an asset whose life is known. The asset will produce known revenues each year and will require known outlays each year. The asset will be sold at the end of the last year and the return will be included in the

[2] This method is common to all science and is widely used in the analysis of economic problems. See Alfred Marshall, *Principles of Economics*, (9th ed.; New York: The Macmillan Company, 1949), pp. 36–37.

[3] In as much as the cash assets are "available," they are non-earning assets—idle cash balances—which must be invested to bring a return.

[4] This is true in both manufacturing and merchandising business. Both kinds of enterprise create utility since man cannot create material goods. He can merely rearrange and move goods so as to make them more serviceable. This is the service performed by both traders and manufacturers. See Marshall *op. cit.*, pp. 63–64.

[5] Kenneth E. Boulding, *Economic Analysis*, (3rd ed.; New York: Harper & Brothers Publishers, 1955), pp. 840–841. Cf. John B. Canning, *The Economics of Accountancy* (New York: The Ronald Press Company, 1929), pp. 94–95.

[6] Boulding, *op. cit.*, p. 849.

[7] *Ibid.*, p. 851.

[8] *Ibid.*, p. 842. Although stated in somewhat different terms than those to which accountants are accustomed, this concept of valuation is the one accepted in accounting. The difference between the accounting valuation for merchandise inventory or finished goods and accounts receivable is the gross profit which has been allocated to the receivable by the sale. Inventory is valued at the sum of outlays; receivables are valued at the sum of outlays plus an allocated profit. Similarly, the difference between the value of a note at present and at maturity is the amount of interest income that has been added to it, even though this interest is commonly shown in a separate Interest Receivable account.

[9] For more comprehensive treatments with examples, the reader is referred to: Boulding, *op. cit.*, Chapter 38; Canning, *op. cit.*, Chapters VI and XII inclusive; and Maurice Moonitz and Charles C. Staehling, *Accounting: An Analysis of its Problems* (Brooklyn, The Foundation Press, Inc., 1952), Vol. I, Chapters 1 to 7 inclusive. Although the approach is somewhat different in each of these works, there is a remarkable degree of unanimity of opinion in the conclusions reached. The discussion herein is based on all three sources.

revenue of that year. The revenues and outlays will take place at the end of each year and the profit will be allocated to periods in such a way that all periods will have an equal *rate* of profit.[10] In order to further simplify the exposition, four additional limiting conditions are imposed which in no way affect the validity of the conclusions. These are: (1) all cash received from this business comes either from owners' contributions or from revenues; (2) all cash disbursed is either for operations or for owners' withdrawals; (3) the owners' contribution equals the original cost of the investment so that there is no excess cash in the business at its inception; and (4) all excess cash is withdrawn from the business as it comes in. The first two conditions eliminate the problem of borrowing; the latter two, the problem of non-earning assets.

The value of the asset when it is purchased will be equal to its cost because no profit will have as yet been allocated to it. This value will also be equal to the discounted value of the future net receipts from the asset, discounted at the profit rate. The value of this asset at the end of any period can be obtained in the same manner because in the situation in which all relevant amounts are known, the amount of capital invested always equals the present value of the investment, regardless of the method of profit allocation used.[11] Furthermore, the difference in value between the beginning and end of any period, the depreciation, may be determined readily.[12]

In the absence of capital contributions, the change in capital during the period is wholly explained by the profits and the withdrawals. Then, because withdrawals are defined to be the excess cash in each period (the excess of revenues over outlays), and because the change in capital value from the beginning to the end of the period is the depreciation, the profit for any period is equal to the revenue less the sum of the cash expenses and depreciation.[13] The sum of all depreciation charges over the life of the asset is equal to the original cost of the asset.[14] It follows, then, that the total expense over the life of the asset (operating outlays plus depreciation) will exactly equal the amount of cash disbursed over the life of the asset, excluding capital withdrawals and repayments of borrowing.

A similar relationship exists between revenues and cash receipts. If owners' contributions and borrowing are excluded

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[10] Neither of the last two assumptions is necessary to solve the problem, but they simplify the calculations considerably by making possible the use of compound interest tables. The assumption of an equal profit rate is certainly a logical one, but it is not the only logical assumption that could be made. An assumption of a different rate of profit each period due to external factors is not unreasonable. The only requisite for solving the problem is that the method of profit allocation be known in advance, together with the amounts and time distribution of the revenues and outlays. In addition, if the rate is fluctuating, the rates applying to the various periods must be known; if the rate is constant, it can be determined from the problem itself. See Boulding, *op. cit.*, pp. 842–849.

[11] *Ibid.*, pp. 849–851.

[12] Depreciation may be either positive or negative in sign. Negative depreciation signifies that the value at the end of the period is greater than the value at the beginning of the period and is more properly designated appreciation.

[13] This somewhat complicated statement can be demonstrated easily with simple algebra. The change in capital value from the beginning to the end of the period, $(C_b - C_e)$, is explained by the profits, P, and the withdrawals, W.

$$C_b + P - W = C_e$$

But withdrawals are the excess cash, the difference between revenues, R, and outlays, O. Hence.

$$C_b + P - (R - O) = C_e$$

or

$$P = R - O - (C_b - C_e).$$

Then substituting depreciation, D, for $(C_b - C_e)$.

$$P = R - (O + D).$$

[14] Technically, depreciation will equal the original cost less the scrap value. From the very nature of the problem, however, scrap value must always be zero. One of the anticipated revenues from this asset is its scrap value at the end of its life. This amount is included in the revenue of the last year in calculating its cost. If all expectations are realized (as they will be in the absence of uncertainty), the capital value of the asset will be reduced to zero by the last revenue.

from consideration, the cash received over the life of the asset is exactly equal to the revenue. In fact, revenue is always identified with the conversion of real or earning assets into cash—with final fruition in money.[15]

The foregoing discussion reveals the following characteristics of the nature of periodic income and its determination:[16]

1. Over the life of a business, revenue is equal to the cash receipts from operations, and expense is equal to the cash disbursements from operations; the profit (positive or negative) is therefore equal to the difference between cash receipts and cash disbursements resulting from operations. This relationship is the most vital one in income determination.
2. For any period less than the life of the enterprise, revenue is equal to the cash that will be received (past, present, or future) as a result of the operations of the period, and expense is equal to the cash that will be disbursed (past, present, or future) as a result of the operations of the period.
3. Periodic income determination is essentially a process of asset valuation because the value placed on net assets at the beginning and end of an accounting period determines the profit allocated to that period, or conversely, the part of the total profit allocated to periods determines the value of the assets.
4. The rate of profit (whether it is assumed to be equal in all periods or not) is a rate of growth of capital value because it measures the proportion by which a given asset or group of assets increases in value during the period due to operations.
5. The value of an asset determined by the invested capital method (adding outlays and allocated profit) equals its value determined by the present value of net revenues method (discounting net revenues by the same profit-rates used in allocating profits under the invested capital method).
6. Income and asset valuation depend on the expected amount and time distribution of cash movements which take place primarily in the future and are therefore subjective in nature.

The most serious problems encountered in the measurement of periodic net profit are the result of man's inability to foretell the future accurately. Inasmuch as the results of business decisions cannot be known, periodic income can only be estimated until such time as the effects of the decisions have all become apparent. The results of many decisions become intermingled until the accountant is faced with a continuous stream of business events which cannot be traced directly, and cannot entirely be separated into those relating to completed ventures and those relating to uncompleted transactions. In the actual world of uncertainty, the determination of periodic net income is not an easy matter.

The accountant's reaction to this uncertainty regarding estimates of income is to rely on accounting principles and conventions, especially those relating to the use of objective evidence as a basis for estimates, consistent treatment of items, and full disclosure of circumstances. Uncertainty and accounting conventions, however, do not change the basic *nature* of periodic income. They do not change the relationship between revenue and cash receipts or the relationship between expense and cash disbursements. Nor do they affect the relationship between income determination and asset valuation. They affect only the *accuracy* of estimates of revenue and expense and of asset valuation.

The estimating of income, under conditions of uncertainty as well as of certainty, requires that the accountant trace carefully the relation between income flows and cash movements:

> While it is true that there may not be an equality between the amount of revenue and the amount of cash receipts for any period less than the dura-

[15] Canning, *op. cit.*, pp. 95, 101, Boulding, *op. cit.*, pp. 841–2.

[16] See Edward G. Nelson, "The Relationship Between the Balance Sheet and the Profit and Loss Statement," in THE ACCOUNTING REVIEW, Vol. XVII (April, 1942), p. 133.

tion of enterprise existence, receipts are the elements with which we construct all measures of revenue. A dollar is received at *some time during the life of the enterprise* for each dollar of revenue exhibited during the fiscal period. The sum of the annual revenues for all fiscal periods is equal to the amount of ultimate total revenue. There may be no equality between the amount of expense and the amount of cash disbursements for the fiscal period and yet the two sums are equal for the life of the enterprise. A dollar is disbursed at *some time during the enterprise existence* for each dollar exhibited as expense of the fiscal period.[17]

The accountant's problem is essentially one of reconciling cash receipts with revenues and cash disbursements with expenses. That is, for every revenue recognized but not received in cash during the current period, an asset of equal value must be recorded (or a liability must be amortized); for every expense recognized but not paid in cash in the current period, a liability of equal value must be recognized (or an asset must be amortized).[18]

In actual practice, uncertainty precludes the assignment of revenues and expenses to accounting periods independently of each other. Either revenue or expense must be chosen as the controlling factor and assigned to periods first. The other is then allocated to accounting periods on the basis of its relationship to the controlling factor. Although either element presumably could be chosen, accountants overwhelmingly agree that revenue is to be allocated first and then costs are to be matched against revenue.[19]

The problem of revenue estimation is one of estimating the cash that eventually will be received as a result of current operations. In practice, revenue may be recognized on the basis of cash receipt, sale, completion of production, or percentage-of-completion of production. The choice among these is usually based on practical considerations involving accuracy of estimate and reliability of evidence. All of these bases, if properly applied, result in an estimate of revenue that fulfills the requirements of the basic nature of the income determination process. Realization should occur at the earliest possible moment consistent with a reasonable degree of accuracy in estimating those values that will not ultimately be received in cash. If these realization bases are used under appropriate conditions regarding difficulty of estimation, each gives the best estimate possible under the circumstances of the eventual cash receipt.

Cost matching cannot be accomplished as satisfactorily as revenue estimation, and most of the income determination problems are found in this area. The choice of revenue as the controlling element in periodic profit measurement complicates cost matching. Income is accurately determined if all costs relating to the earning of the revenue allocated to the current period are charged as expenses of the current period, and all costs relating to revenue of future and past periods are eliminated from current expenses. Costs pertaining to future revenues must be carried forward as inventories, prepaid expenses, or fixed assets; costs pertaining to prior periods must be written off against prior periods' earnings. Liabilities must be set up for current expenses not yet paid. If the best possible measure of profit is to be attained, therefore, the accountant must make every effort to match costs with the revenues with which they are actually associated.[20]

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[17] Nelson, *op. cit.*, p. 133. Italics in the original.

[18] There is no place in the system for amortization of assets and liabilities under conditions of certainty. Asset and liability values are determined with reference to future events. With uncertainty present, however, some reference must be made to past events; hence, amortization is necessary.

[19] See George R. Husband, "A Critique of the Revised Statement of Accounting Principles," in ACCOUNTING REVIEW, Vol. XVII (July, 1942), p. 287, and W. A. Paton, *Advanced Accounting* (New York: The Macmillan Company, 1941), p. 458.

[20] *Accounting and Reporting Standards for Corporate Financial Statements and Preceding Statements and Supplements* (Columbus, Ohio: American Accounting Association, 1958), Supplementary Statement #6, December 31, 1953, pp. 36–38.

The understanding of the relationships between cash movements, income, and asset value does not, of course, immediately and automatically solve all the problems of profit measurement. The assumption that the value of the measuring unit remains stable is implicit in the foregoing discussion. The price-level problem is therefore an example of an important problem which remains unsolved. This problem concerns differences between real and monetary income and the maintenance of capital. It cannot be solved by reference to realization and matching which are concepts derived from the relationship between cash movements and income and are themselves based on the assumption of stable prices.

But many of the perplexing problems of accounting do fall nicely into place when set in proper perspective against the background of the cash-income-asset relationships. Among these are the nature of bad debts and the status of such suggested solutions to accounting problems as LIFO, depreciation on replacement cost, re-investment depreciation, and others. The basic relationships between cash movements and income measurement lay out the path to real solution of income determination problems. Accountants should abandon the present practice which leads to so many dead-end detours and concentrate their efforts within the basic framework of income determination. An immediate consequence will be more uniformity of accounting thought and results, and less confusion among those for whom accountants prepare information. Myopia in accounting is curable if the right prescription is used.

TRAINING ACCOUNTANTS IN GREAT BRITAIN

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CURRENTLY there is considerable controversy in the United States regarding methods of preparing young people for the accounting profession. Educators particularly are concerned and are examining such questions as the proportion of the college program to be devoted to accounting as compared with so-called broader subjects, the number of years of higher education to be required of accounting majors (some suggest five or six year programs), and the amount of practical material to be included in accounting courses. Thus far no consensus on these matters seems discernible.

The further question of whether a college program in accounting is even desirable has not been raised, at least not by accountants. Perhaps it should be. In some countries apprenticeship training is used widely and most of the young people entering the profession do not attend college at all.

Since the accounting profession is older in Europe than in America, it seems possible that the experience in training accountants on that continent could be of some help to us in understanding and solving our problems. With that in thought, a study was made of methods of training accountants in some of the European nations. This article describes the training of accountants in Great Britain, first discussing the situation in England and Wales and later mentioning ways in which the Scottish training differs.

The Institute of Chartered Accountants in England and Wales has virtual control over the admission of people into the public accounting field in those two countries. There is no separate licensing of public accountants by a government. Membership in the Institute is comparable to holding a state license to practice as a certified public accountant in this country. Members are allowed to described themselves as "chartered accountants" and to use the abbreviations F.C.A. (for fellows) and A.C.A. (for associates). Businessmen are accustomed to seeking the services of Institute members for their professional accounting needs, and "by far the most important part of professional accounting work is carried out by chartered accountants."[1]

How is the control over entrance into the profession effected? To become a chartered accountant one must:

a) become an articled clerk (apprentice) under Institute regulation and supervision for a prescribed period of years;
b) pass examinations prepared, administered, and graded by the Institute;
c) be accepted by the Institute council for membership;

Some details concerning this plan follow.

Articled Clerks

A person becomes articled through an agreement, called "Articles of Clerkship," between a chartered accountant (the principal) and the individual (the articled clerk); and if the individual is under twenty-one years of age, a parent or guardian also becomes a party. The period of the articles is usually five years. However, for a graduate of a university in the

[1] The Institute of Chartered Accountants in England and Wales, *Why Not Become a Chartered Accountant?* (London: The Institute, May, 1958) Page 1.

United Kingdom, the period of articled service need not exceed three years.

Before entering articles, a person must pass or obtain exemption from a preliminary examination, which is a test of general education. Exemption normally is obtained through having achieved a certain standard in earning a general certificate of education while at school, provided English language and mathematics are included. If unexempted, the applicant takes a preliminary examination prepared by the Institute. This includes two and one-half hours of English, four hours of mathematics (including arithmetic, algebra, and geometry) and two hours in each of three other subjects selected from English, history, geography, Latin, classical Greek, French, German, Spanish, Italian, Russian, advanced mathematics, physics, chemistry, geology, and biology. This author examined the questions given at the November, 1958, sitting and realized to his considerable discomfort that he, a professor with a Ph.D. degree, could not have passed that examination without preparation.

Only four articled clerks are allowed an Institute member at any one time except with special permission of the council. However, it appears that when a firm is well able to train a greater number, permission is readily obtained. Thus, one firm having fifteen partners in London is reported to have about 170 articled clerks plus some other boys who are being trained preliminary to entering their fathers' businesses. The firm has one employee devoting practically all his time to supervising the training program for its clerks.

Boys of 16 years may enter into articles of clerkship.[2] At the other extreme, men up to 45 years of age have been accepted. But the average beginning age is said to be about 17½ years. Thus, the majority achieve the status of chartered accountant between the ages of 22 and 25.

As a rule, a premium is no longer required to be paid the chartered accountant by or on behalf of the articled clerk. Where a premium is paid, it is often returned in installments during the period of the articles. In many cases a salary is paid the clerk, increasing as he gains in proficiency. Financial aid from a charitable and educational foundation is available to some.

Preparation for Examinations

As stated previously, an aspirant to the profession of chartered accountant must satisfy a preliminary examination requirement before he may enter into articles of clerkship. Thereafter he has two other examinations, an intermediate one, taken after two years of clerkship, and a final one after completing the five years of service. Exemption from the intermediate examination is possible for some who have taken university degrees with emphasis on certain courses, as will be explained later.

Preparation for the examinations is acquired in several forms. The clerk's work with his principal is purposely varied to give him contact and experience with different aspects of accounting. This is covered by a clause in the articles of clerkship whereby the principal agrees to "engage the Articled Clerk on such work and afford him such opportunities and experience as are necessary for the purpose of enabling the Articled Clerk to acquire the art and knowledge of a chartered accountant in practice as a public accountant."[1] The clerk also enrolls in correspondence courses and studies and prepares his course assignments outside the 35 working hours of his five-day work week. Correspondence

[1] Although the masculine gender is used in referring to articled clerks and chartered accountants in this article, women are also admitted into the program and Institute. About three hundred women were members of the Institute in 1958 and indications are that the number will increase steadily.

[2] The forms for the articles of clerkship are provided by the Institute and are therefore uniform.

courses are said to be preferred over evening classes to avoid loss of time traveling, which can be considerable in a city as large as London.

Each articled clerk is required to join a local "chartered accountant students' society." The principal is obligated to pay the entrance fee and the annual dues to insure that belonging to the society is not a prohibitive financial burden to the clerk. The society provides a library, lectures, debates, mock company stockholders' meetings, and social and sporting activities. It thus becomes an important element in the training program. In some areas, tuition classes are arranged by a joint committee representing the students' society and the district society of chartered accountants.

It is permissible for an articled clerk, with the consent of his principal and the approval of the council of the Institute, to spend up to six months in an approved business organization. About 25% of the clerks take this option. They receive a certificate from the business firm when the work is completed and the time thus spent is considered a part of the five-year training program.

The principals watch the progress of their articled clerks with interest. A clerk articled with one large firm stated in an interview that he is required to make monthly reports to his firm on how many papers (lessons) he completes and submits in his courses, how many have been returned to him, and what percentages (grades) he receives. He meets monthly with his principal at which time his progress is reviewed and advice given. An officer of another firm stated that it requests and receives reports on the progress of its articled clerks from course instructors every three months. The clerks themselves write a report every six months on their progress and on the relation between their work and what they learned in their studies. They also are encouraged to comment freely upon any aspects of their program and relationship with the firm.

A principal, in effect, serves as an agent of the Institute in training an articled clerk. Besides agreeing to give the clerk guidance and varied experience, he covenants in the articles of clerkship to allow him "reasonable leave for attendance at lectures and students' society meetings" and to "afford him facilities for study or for obtaining theoretical instruction." Further, he "will allow the articled clerk a period of leave of not less than one month of full-time study prior to each occasion on which the Articled Clerk presents himself for an examination held by the Institute." One firm interviewed reported that it allows its clerks three months off before each examination with instructions to spend seven weeks in hard study and the last six weeks in relaxing to prepare themselves physically for the examinations.

The partners in some firms offer lectures just before examinations as a final aid in the preparation. These cover such subjects as internal check, office routine, taxation, liquidation, bankruptcies, and receiverships.

The Examinations

It is of interest to note the nature of the two examinations necessary to be passed by an articled clerk. The first, called the intermediate examination, may be taken after two years of service if his period of required service is in excess of three years. If because of a general university degree his service is cut down to three years, he may take the examination after one year of service.

The May, 1959, intermediate examination included the following subjects:

1. Bookkeeping and Accounts (including limited companies)	3 hours
2. Bookkeeping and Accounts (including partnerships)	3 hours
3. Bookkeeping and Accounts (including executorship)	3 hours

4. Auditing — 3 hours
5. General Commercial Knowledge (including the elements of English law) — 3 hours
6. Taxation and Cost Accounting — 3 hours

The second examination, called the final, must be taken and passed by all articled clerks, regardless of university education, in order to become chartered accountants. The May, 1959, final examination included the following subjects:

1. Advanced Accounting—Part I (including a major question on partnership) — 3 hours
2. Advanced Accounting—Part II (including a major and a minor question on executorship) — 3 hours
3. Auditing, including Investigations — 3 hours
4. Taxation — 3 hours
5. General Financial Knowledge, Cost and Management Accounting — 3 hours
6. English Law—Part I (including company law, liquidations, and receiverships) — 3 hours
7. English Law—Part II (including contracts, sales, bankruptcy, and trusts) — 3 hours

A clerk who has failed an intermediate or final examination may request permission to take a subsequent examination, except that the examination committee may in its discretion (but subject to an appeal to the council of the Institute) refuse to allow him to do so.

Upon passing the final examination and submitting a certificate prepared by the principal that he has served his clerkship well and faithfully, the articled clerk is considered for associate membership in the Institute.

University Graduates

The universities and the accountancy profession in England and Wales have cooperated in recent years approving a "scheme" whereby it is possible to obtain within a period of 5¾ years both a university degree and professional qualification.[4] According to this plan an articled clerk who has earned a university degree in the United Kingdom may have the period of his articles set as low as three years, the university degree being obtainable in 2¾ years.[5] Furthermore, if throughout his university attendance he takes courses in accountancy (including cost, auditing, and taxation), economics, and law (including principles of English law, law of contract, commercial law, and executorship), he may be excused from taking the Institute's intermediate examination. The Institute and the universities recommend that, along with the courses mentioned, some work also be taken in a modern foreign language and in government, if time permits.

Up to the present, chartered accountants as a whole have not shown particular preference for clerks trained in a university. Some openly declare a preference for those willing to enter into articles without a university degree. As a probable consequence, relatively few men entering into accounting are college trained.

Some figures can be quoted in support of this statement.[6] Of the 817 people admitted to membership in the Institute in 1956, only 111 had university degrees. In 1957, members admitted were 894, of whom 124 had degrees.

An examination of articled registrants for the three latest years shows less than 10% having college degrees. The figures are as follows:

Year	*Articled Registrants*	*With University Degrees*
1956	1596	143
1957	1624	155
1958	2562	215

The 1958 figures were affected by the Institute's absorption of the Society of Incorporated Accountants.

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[4] The "scheme" is described in detail in a booklet prepared by a joint committee of the universities and the accountancy profession entitled *The Universities and the Accountancy Profession*, dated July, 1958, and obtainable through the Institute of Chartered Accountants of England and Wales. Another booklet published at the same time by the Institute and entitled *Approved Universities, Degree Courses*, gives further explanation of the plan.

[5] Preparatory schooling takes the student a year beyond our high school training and reduces the University period accordingly.

[6] The figures given were all supplied by H. C. Edey, Reader, London School of Economics and Political Science.

Since not all students who take university courses leading to a degree in accounting enter into articles of clerkship, it is interesting to note the number of students enrolled in English universities aiming toward that degree. In 1958–1959, there were only 528, including 178 in their first year, 189 in their second year, and 161 in their third year.

In some aspects of accountancy training the university courses are considered to be better than a five year apprenticeship supplemented by correspondence courses, etc. This is true particularly in finance, management accounting, cost accounting, and commercial law. But it is not true in general accounting, auditing, and tax. The universities do not plan their programs to train men directly for the accountancy professional examinations. In fact, the trend is away from giving technical training in some of the major universities such as in London, Nottingham, and Durham.

Suggested Improvements in the English System

As of January 15, 1959, a committee of the Association of University Teachers of Accounting, under the chairmanship of H. C. Edey of the London School of Economics and Political Science, rendered a comprehensive report to the Institute of Chartered Accountants' Committee on Education and Training. The report is concerned with the training of accountants and makes recommendations for improving it. The report is so significant as a criticism of the present training program that its important points are summarized below:

1. The present apprenticeship system of training was taken over from the legal profession 100 years previously and has undergone only minor changes since.
2. The minimum age for admission into training should be raised by one or two years, with that time devoted to more schooling. Entrants into the profession would then be more mature and better able to judge if they were choosing the right occupation. Also, they would be close to or at university age and might be encouraged to select the university option in their training.
3. At present, the whole initial responsibility of judging a boy's suitability for the profession rests upon the individual practicing members of the Institute. Panels appointed by local societies of chartered accountants are suggested for advising both applicants and principals in the articling of clerks (a procedure practiced by the legal profession), or aptitude tests, such as have been developed by the American Institute of Certified Public Accountants, could be used for guidance.
4. All prospective chartered accountants take the same examinations which are designed to indicate professional proficiency. Certain subjects important to industrial accountants, such as management accounting and statistics, are given little weight or are neglected. It is suggested that some choice be permitted so that prospective industrial accountants might deal with questions on costing and industrial law. Also, the privilege of spending some of the period of articles of clerkship in industry might be extended for longer than the present six months in order to make it more attractive.
5. There are serious disadvantages in the system of giving theoretical instruction by correspondence. There are, for example, the lack of stimulus of contact with teachers and other students, of a chance to learn through mistakes made by others, of inducement to explore alternative answers or approaches, and of a critical and skeptical approach. A suggestion is made that the established Colleges of Advanced Technology and a few other colleges could offer courses to take the place of correspondence courses, the universities not being in a position to handle such a large volume of students.
6. Theoretical study after a day's office work is not very effective. Alternating periods of study and work during the articled years would be preferable. A program to cover the five-year period could be as follows:

	College	3 months
	Office	12 months
	College	6 months
	Office	15 months
	College	9 months
	Office	15 months
Totals:	College	18 months
	Office	42 months

Clerks already holding degrees from universities might have the college training reduced to 12 months and the office training to 30 months in recognition of their greater maturity and wider intellectual background. For those who took their degree in accountancy, the theoretical training could be cut to six months.

Evening study while doing office work would still be expected and prescribed but to a much lesser extent, eliminating much of the present drudgery. The students' societies could then serve a more useful function during the freer evening hours.

It is suggested that the Institute "recognize" only those colleges whose standards satisfy its requirements. It is possible that competition among colleges for such recognition would raise the standard of commercial and accounting teaching.

7. Some of the examinations given by the Institute are too much a test of dexterity with figures and too little a test of understanding the significance of the figures. Also, there is little to stimulate a critical or imaginative approach to accounting practices or principles. As a consequence, the accounting literature read by articled clerks seems limited to a few standard text books.
8. It is recommended that two additional papers be required in the examinations—one in the elements of economics, to be included in the intermediate examination, and one in statistics and financial mathematics, to be included in the final examination. Present questions on economics, included in two other examinations, are "little more than a collection of unrelated snippets." Their elimination would make room for a serious test of the English legal system and for including more needed coverage of management accounting.
9. The recommendations in (4) and (8) above, if followed, would allow for a division of the final examination into two options—the "professional" and the "industrial"—according to the career intentions of the clerks. The professional option would have "higher level" examinations in auditing and taxation and a "lower level" examination in management accounting and finance than industrial option. However, either option should provide a minimum qualifying standard for any accounting work.
10. As a means of training young people for practice in accounting, the present system is subject to three important criticisms. To quote the report:
    "a) Principals may have to delegate the supervision of articled clerks to persons who do not have much interest in their training or the time to answer questions or explain what is going on.
    b) In any but the largest practices, it is impossible to provide complete all-round experience, and there may be serious gaps, both as regards types of work (e.g. costing) and as regards types of client (e.g. financial concerns, manufacturers, etc.)
    c) Rarely, we think, is there any co-ordination between the ground being covered in a clerk's theoretical studies and the practical work he is doing at or about the same time in his office."

    The sandwiching of theoretical study and practical experience as proposed in (6) above would, to a considerable extent, reduce the force of criticisms (a) and (c). In regard to criticism (b), it is suggested that transfers of articles between firms be arranged, or that group apprenticeship schemes be advocated under the supervision of district societies of chartered accountants. Members of the Institute employed in industry might also be included in such groups.
11. On no profession of comparable importance in England and Wales have the universities made so little impact as on the accountancy profession. If the profession fails to increase its attractiveness to graduates of universities, it will have to recruit more and more from those young people not gifted enough to be admitted to universities.
12. Accountancy in a university with a well-conducted faculty is not a narrow study. Combined with economics and law as recommended, it gives its students a broader education than is received by those pursuing "pure arts" or "pure science." And even though an accounting graduate entering the profession is articled for only three years, by the end of that time he seems to have caught up to the non-graduate with five years of training, so far as experience is concerned. If the recommendations of this report are followed, more people would be attracted to university training in accounting and to the profession.
13. It is proposed that the Institute create a post of Director of Education and Training for continuous liaison between the Institute and

the schools teaching the theoretical subjects called for in the proposed plan. There is also room for an Educational Advisory Committee, made up of representatives of the Institute, on the one hand, and of educationists, on the other, to keep the profession's educational arrangements under constant review.

14. If the accounting profession wishes to maintain its position as a learned profession, it cannot afford to spare effort and money on the education of its future members.

Training Accountants in Scotland

In Scotland, the Institute of Chartered Accountants of Scotland (the oldest such institute in existence) has close control over admittance of new members into public accounting practice. In general, the training in Scotland parallels that in England and Wales. There are some differences, however, and what appear to be the more important ones will be mentioned.

The Institute gives no preliminary examinations but requires that the candidate pass one given by the Scottish universities or independent examining boards or that he have a university degree. Included in these preliminary requirements is the ability to use a foreign language, either modern or ancient.

The intermediate examination is divided into two parts, the first of which, dealing with arithmetic, algebra, elementary finance, and elementary statistics, may be taken even prior to the registration of the indenture of apprenticeship. The second division may be taken after one year of apprenticeship, or any time after registration of the indenture if the candidate is a university graduate. This examination includes bookkeeping, auditing, income tax, and office routine.

Preparation for the final examination is accomplished mainly through attending classes offered by universities. These classes are arranged for by the Institute and are given in the early morning or the evening. Courses are in economics, mercantile or Scots law, and accounting and business method (advanced accounting). As described by one professor of accounting, his class of 90 students is taught by the lecture method (150 lectures) and covers the whole area of advanced accounting. A few special problems are given but not corrected, the solutions being handed out to the class later. There are no assigned textbooks. There is a recommended reading list but the students have little time to study. Examinations are given quarterly.

The Institute also provides tutorial classes of the "brush-up" variety for those about ready to take an examination. Lecturers are selected from the membership list of the Institute, and attendance of candidates is not required.

Like the intermediate examination, the final is divided into two parts. The first deals with the law of Scotland and trust accounting. It may be taken at any time during the period of apprenticeship after passing the intermediate examination and after the candidate "obtains a certificate of satisfactory attendance and due performance of the work of a class in law."

The second division of the final examination cannot be taken until the apprenticeship is completed. Furthermore, the candidate must have passed the first division examination and have completed his university class in accounting and business method. This part of the final examination includes advanced accounting, costing (including business statistics and budgetary control), taxation, investigations, and auditing.

The final examination does not cover the subject of economics. However, the class in economics must be taken during or after the apprenticeship period and the candidate's final examination certificate will not be issued by the Institute until certificates are submitted showing that the economics course has been taken and its examination passed.

A Special Committee on the Examina-

tion and Training of Apprentices in 1956 proposed that each candidate be required to spend a full academic year of nine months at a university, for which time he would be granted a leave of absence from his office. During this year (presumably the third year of appenticeship) he would take the prescribed classes in law, economics, and accountancy and business method. Foreseen advantages are that the course work would be regarded more seriously, more reading could be required, and students from outside the larger cities would find attendance much easier. Just this past summer the Institute membership approved the change and only the approval of the Privy Council is now necessary to make it effective.

Other changes of interest recommended by the Committee but apparently not adopted as yet are as follows:

1) There should be an Institute examination divided into five parts, one of which would normally be taken in each year of apprenticeship.
2) Increased emphasis should be laid on management accounting.
3) Limits should be placed on the number of attempts allowed on each part of the examination.
4) The examination in law, as well as in economics, should be conducted by the university in which the study is taken.
5) Encouragement should be given to graduate apprentices.

A past president of the Institute in Scotland recently made the comment, "we believe that the qualification held by a Scottish Chartered Accountant ranks second to none in the accounting world." While that statement is open to challenge, the discussion in this article leads one to assume that the Scottish training of accountants is somewhat superior to that of the English.

Conclusion

It is apparent that, like us, the British are not entirely satisfied with their methods of training young people in accounting. Whereas reliance had been placed to a very considerable degree on the apprenticeship type of training, there seems to be a growing conviction that the theoretical training given in institutions of higher education would be beneficial and should be encouraged and made more easily available.

Perhaps this conviction has arisen from a realization that in some of the countries on the European continent the accounting profession has risen in public esteem to a point where it appears to rank higher relative to other professions than it does in Britain.[7] In each of those other countries, the formal study of accounting theory, usually through attendance at universities, is given greater emphasis than in England. It is significant that in the reports of investigation committees in both England and Scotland more university training is recommended.

However, it is not to be assumed that the apprenticeship system is under fire or apt to be discontinued. The writer saw no evidence of that. The benefits of thorough training on the job are understood and appreciated, and we might well weigh its merits in any changes we contemplate in our own training program.

There are, in fact, several possibilities for improving our program suggested by the British experience and studies. A greater emphasis on work experience before granting a license to practice as a certified public accountant is one. Some states still have no experience requirement. In some others the period of required experience could be regarded as inadequate, as when only one year is required for a

[7] At least this opinion regarding the ranking was expressed to this author in those other countries.

person with a college degree in accounting. Mixing or alternating periods of experience and study seems very meritorious.

It is possible, too, that a greater degree of regulation over the variety of experience given to the neophytes in public accounting would be beneficial. Perhaps this could best be arranged through influence exercised by the American Institute of Certified Public Accountants or by state societies of certified public accountants. Firms of accountants might also be induced to give more encouragement to those men on their staffs not yet certified, even to the extent of giving them free time for preparation prior to their examinations.

Finally, broadening the theoretical training might be considered. It is difficult to visualize an accountant being prepared to offer the best potential service without some training in economic principles and problems and in management accounting. Giving prominence to such subjects in the certified public accountants' examinations would result in their being included in the examinees' study programs.

MANAGEMENT ACCOUNTING IN AUSTRALIA

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Introduction

Australia is a free enterprise country whose people enjoy both a high standard of living and political freedom. The post-war years have brought to this country an era of industrial development unprecedented in her history and there are at present many opportunities for profitable investment in what is an expanding market. The favorable climate for enterprise is encouraging an increasing rate of inflow of British and American capital.

Prior to World War II, the growth of Australia's manufacturing industries had been relatively slow and the economy of the nation was based principally on its rural industries. The war gave great stimulus to industrial expansion and the production of many types of commodities, previously imported, became a necessity, mainly because of the country's isolation. In the post war period, due to world-wide shortages and currency restrictions, this development has not only been consolidated but has rapidly expanded. Progressive enterprises have obtained their share of the expanding market and have grown both in size and output. This expansion has increased the pressures for efficiency in production, marketing, and administration. As a result, management has become a very influential force in Australia, as elsewhere, and the role of accounting as an aid to management has been similarly affected. The purpose of this article is to compare the use of management accounting techniques in Australia with their use in the United States of America and Canada.

Management Surveys

It has been suggested that Australian industry uses management accounting techniques to a lesser extent than American industry.[1] Two research projects conducted recently throw light on these opinions. The first examined the management planning and control practices of a selected group of 424 American and Canadian companies.[2] The results of this study were published in 1958.[3] The second project, commenced in 1957, examined financial organization and control practices in a selected group of 157 Australian companies.[4]

Before comparing the results of these two surveys, three qualifications should be noted. First, the companies selected did not represent a random sample in either case but rather a selective sample, and therefore results should not be regarded as representative of companies generally either in the United States and Canada or in Australia;[5] second, the re-

[1] This opinion may have been influenced to some extent by the *Report of the Anglo-American Productivity Council on Management Accounting*, published in 1950. According to this, British industrial management was, at that time, making less extensive and less effective use of management accounting techniques than its American counterpart.

[2] Undertaken for the Controllership Foundation Inc., the Research Arm of the Controllers' Institute of America, by Dr. Burnard H. Sord, Assistant Professor of Management, and Dr. Glenn A. Welsch, Professor of Accounting, University of Texas. Permission to use some of the information provided by this survey is herewith acknowledged. This project will be referred to here as "The American Survey."

[3] Sord and Welsch, "Business Budgeting—A Survey of Management Planning and Control Practices," Controllership Foundation Inc., New York, 1958.

[4] Undertaken by the author, 1957–59, and here referred to as "The Australian Survey."

[5] Where the terms "Australia" and "America" (or United States and Canada) occur in this paper, these terms are used for convenience in reference only. There

sponse to the American mail survey[6] (389 out of 785, or 49.5%) was somewhat higher than the response to the Australian survey (157 out of 450, or 34.7%), but not markedly different; and finally, the companies selected in both projects belonged to professional management institutes and might, therefore, be expected to be representative of companies which would be making a "better-than-average" use of budgets, standards, and other management accounting and control techniques. Thus, while the two surveys do not claim to be necessarily representative of the total population of companies in either of the geographical areas studied, it is considered that they are sufficiently similar in nature to allow valid comparisons to be made.

In the American survey,[7] "large" companies were defined as those with 10,000 or more employees; "medium" companies as those with less than 10,000 but more than 2,500 employees; and "small" companies as those with less than 2,500 employees. The same categories were assumed in the Australian survey. On this basis, of 157 Australian companies, 128 (82%) were small, 27 (17%) medium, and 2 (1%) large; of 389 American companies, 118 (30%) were small, 150 (39%) medium, and 121 (31%) large. These results, while not necessarily typical of industry as a whole, do seem to verify the generally held opinion that the average Australian company is smaller than its American counterpart. The American survey indicated that there is a high degree of correlation between the complexity and magnitude of planning and control and the number of employees whose efforts must be co-ordinated.

Delegation of Authority and Responsibility

The degree of delegation of managerial authority and responsibility is shown in Table I. Delegation of decision-making by top management is most effective when most of the day-to-day decisions are taken at the lower management level. It will be seen from the table that divisional managers are given a greater degree of authority and responsibility in the United States and Canada than in Australia, where subsidiary managers and supervisors have much less responsibility for developing and revising plans in areas under their control. The inference is that in Australia, top management is spending too much time in doing the work of subordinates and is failing to appreciate that participation by lower level personnel in the planning process facilitates communications, stimulates morale, and makes for better human relations.

Another interesting feature is that with 37% of Australian respondents, divisional, subsidiary, or plant managers are charged only with those costs for which they are directly responsible; conversely, 63% are charged with costs for which they are not responsible, and in approximately three-quarters of these cases, controllable and non-controllable costs are identified and shown separately in routine control reports. These figures indicate that in Australia some progress has been made in the classification of expenses in terms of responsibility and that an attempt is being made to apply the concept of "responsibility accounting."

Table I also shows the extent to which routine control reports follow lines of authority and responsibility. It would appear that the importance of spelling out

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is no intention to generalize. Conclusions are confined to companies comprised in the Australian study and in the American study respectively.

[6] 35 companies were contacted personally, 785 by mail.

[7] The American survey divided the manufacturing group into durable and non-durable categories. Consequently it became necessary (by average weighting procedures) to combine the American results into one figure for manufacturing companies so that the results of the Australian would be comparable with those of the American survey.

TABLE I

(A) DELEGATION OF AUTHORITY AND RESPONSIBILITY
(B) CONFORMITY OF CONTROL REPORTS WITH MANAGEMENT STRUCTURE

(A) *Delegation of Authority and Responsibility*

	Manufacturing		*Public Utilities & Transport*		*Wholesale and Retail*		*Finance*		*Miscellaneous*		*Total*	
	Aust.	*USA*	*Aust.*	*USA*	*Aust.*	*USA*	*Aust.*	*USA*	*Aust.*	*USA*	*Aust.*	*USA*
Total Number of Replies	89	302	12	40	15	16	7	9	8	5	131	372
	%	%	%	%	%	%	%	%	%	%	%	%
Divisional, subsidiary, and plant managers have *full* responsibility and authority for their operations, except for broad over-all policy, control, and appraisal of results.	10	33	8	7	13	6	14	—	—	20	10	28
Divisional, subsidiary, and plant managers have *considerable* responsibility and authority for their operations, subject to continuous review and approval by centralized management.	58	56	58	83	53	75	14	89	75	80	57	61
Divisional, subsidiary, and plant managers carry out operational plans and/or budgets *Developed in Detail by Centralized Management*	32	11	34	10	34	19	72	11	25	—	33	11

(B) *Conformity of Control Reports with Lines of Authority and Responsibility*

Total Number of Replies	89	315	12	40	15	16	7	10	8	6	131	387
	%	%	%	%	%	%	%	%	%	%	%	%
Conform Fully	28	59	25	60	7	38	14	20	50	50	26	56
Conform substantially	48	36	42	38	66	62	43	70	37	50	49	39
Conform partially	16	5	8	2	7	—	—	10	13	—	13	5
Do not conform at all	8	—	25	—	20	—	43	—	—	—	12	—

organizational responsibility is generally recognized and practiced in America, whereas in Australia, control reports follow lines of authority and responsibility to a lesser degree. It will be seen that the results of the two parts of the table are consistent. If the degree of delegation of authority is less complete in the Australian sample, it is to be expected that fewer control reports would be prepared there on that basis.

Budgets and Budgetary Control

A most valuable part of budgetary procedure is the opportunity it presents of periodically reviewing and, if necessary, restating basic entrepreneurial policies. A properly designed budgetary system should correlate effort in planning, coordinating, and controlling activities, but it would seem there is a tendency in Australia to overlook the planning and coordinating aspects of budgeting and concentrate unduly on the control aspect. It has already been seen that there appears to be a greater reluctance by the Australian companies to delegate to lower level supervisors responsibility for developing and revising plans. A well planned and wisely applied budgetary system should contribute much towards the improvement of staff morale. No management control device will reveal organizational weaknesses so quickly or provide so many avenues for checking and attaining enterprise objectives as a complete and properly integrated budgetary system. It should be appreciated, however, as Bartizal says, that "although a budget should be of assistance to management in the control of operations, it is necessary to keep in mind the essential distinction between the sources of control and the budget as an instrument of control. The budget charts the course towards certain objectives but does not, of itself, prevent devia-

TABLE II

PERCENTAGE OF COMPANIES
(A) ESTABLISHING DEFINITE BUDGET OBJECTIVES
(B) DEVELOPING LONG RANGE FORECASTS OR PLANS

Area	*Manufacturing*		*Public Utilities & Transport*		*Wholesale and Retail*		*Finance*		*Miscellaneous*		*Total*	
	Aust.	*USA*	*Aust.*	*USA*	*Aust.*	*USA*	*Aust.*	*USA*	*Aust.*	*USA*	*Aust.*	*USA*
(A) *Budget Objectives*												
Total number of replies	104	315	12	40	19	16	13	9	9	6	157	386
	%	%	%	%	%	%	%	%	%	%	%	%
Sales	88	99	100	98	68	100	23	56	33	83	78	97
Expenses	80	86	100	85	68	100	38	100	44	67	74	86
Production	85	84	75	73	21	25	—	11	11	50	65	78
Capital expenditures	86	94	100	100	79	94	31	33	89	100	82	94
Cash	85	86	92	95	79	100	46	33	78	67	81	86
(B) *Long Range Forecasts or Plans*												
Total number of replies	89	317	12	40	15	16	7	10	8	6	131	389
	%	%	%	%	%	%	%	%	%	%	%	%
Sales	16	61	—	87	—	81	—	40	—	50	11	63
Capital expenditure	19	60	25	90	7	81	—	40	—	67	16	64
Cash	18	46	8	70	7	75	—	20	—	50	14	50
Profit	17	51	—	73	—	75	—	50	—	50	11	54

tion from the course or ensure the attainment of the objectives."[8]

Table II reveals a satisfactory result in the Australian manufacturing, public utilities, and transport groups regarding the percentage of companies establishing definite budget objectives. The over-all figure is not quite as good as that of the American sample, mainly because of the poorer results in the wholesale and retail, finance, and miscellaneous groups. Nevertheless, a reasonable percentage of respondents reported the establishment of budget objectives for production, sales, expenses, capital expenditure, and cash.

The Australian results, however, appear less satisfactory when the percentage of companies developing long-range forecasts or plans is considered. Only 11% of the Australian, as against 63% of the American companies, developed long-range sales plans, and long-range plans for capital expenditure, cash, and profits were also prepared to a far lesser extent in Australia than in the United States and Canada. While the authors of the American survey considered that the percentage of companies developing long-range plans was not particularly satisfactory, it is clear that the position in Australia is much worse. In the United States, short term budgets are integrated with corresponding long-range plans, at least in a reasonable number of cases. But in the Australian group this most desirable feature appears to be almost entirely absent. Thus, while Table II shows that almost as many Australian as American companies prepare

[8] John R. Bartizal, "*Budget Principles and Procedure*," Prentice-Hall Inc., N. J. 1956. Ch. 1 page 5.

short term budgets, the table also discloses that comparatively few of the former use long-range planning. This could indicate (if the sample selected is in fact better-than-average) that the Australian companies tend to live from day-to-day and fail to plan far enough ahead. Another rather disquieting but nevertheless significant finding is that, although individual budgets appeared to be widely used by the Australian companies, only 62% of those using them reported having a fully integrated system of budgetary control, as against 89% in the American group.

The two surveys also revealed that comparatively less use of flexible budgets is made by the Australian than by the American companies. In the Australian group, 42% used fixed budgets, 43% flexible budgets, and only 6% used both types. The American report indicated a more pronounced trend towards the use of both fixed and flexible budgets.

Only 25% of the Australian respondents reported the use of a budget manual as against 49% of the American companies. The two surveys also showed that only 27% of the Australian, as against 34% of the American, companies have a budget committee. The disparity between these two figures is probably even more pronounced since in the United States, according to the American report, many budgetary functions are performed by executive, finance, planning, operating, and other committees. It is also significant that only 25% of the Australian companies reported the existence of an accounting manual in complete form. In 53% of the other cases, the manual existed in partial form, and only 49% of respondents stated that the manual, whether in either form, contained a chart of accounts. In two-thirds of the latter cases it was claimed that the chart followed lines of organized responsibility and authority.

Standards of Performance

The uses made of various standards or yardsticks to measure and control actual costs are shown in Table III. It would seem that in Australia there is more emphasis on comparisons of actual expense with standards based on historical costs—73% against 62% in America. While this method may reflect an upward or downward trend in relation to a particular cost element, it does not provide any indication as to whether the trend should have been greater or less. This could be because external influences such as inflation have been ignored. For this reason, predeter-

TABLE III

PERCENTAGE OF COMPANIES USING VARIOUS STANDARDS TO MEASURE ACTUAL COSTS

Standard Used	*Manufacturing*		*Public Utilities & Transport*		*Wholesale and Retail*		*Finance*		*Miscellaneous*		*Total*	
	Aust.	*USA*	*Aust.*	*USA*	*Aust.*	*USA*	*Aust.*	*USA*	*Aust.*	*USA*	*Aust.*	*USA*
Total number of replies	104	316	12	40	19	16	13	10	9	6	157	388
	%	%	%	%	%	%	%	%	%	%	%	%
Historical costs	64	57	83	83	84	81	100	90	100	100	73	62
Labor standards	57	68	25	25	16	25	—	30	—	33	41	60
Material standards	57	62	25	10	11	19	—	—	—	33	41	53
Standards costs	65	66	17	13	26	31	8	30	—	17	48	57
Direct or marginal costs	19	38	8	33	5	44	—	10	—	33	14	36
Selling expense budgets	76	88	58	70	68	94	15	70	33	50	66	86
Administrative expense budgets	76	88	58	80	79	88	23	80	44	67	69	86

TABLE IV

PERCENTAGE OF COMPANIES SHOWING FREQUENCY OF REPORTS COMPARING ACTUAL WITH STANDARD PERFORMANCE

Type of Report	*Daily*		*Weekly*		*Monthly*		*Quarterly*	
	Aust.	*USA*	*Aust.*	*USA*	*Aust.*	*USA*	*Aust.*	*USA*
	%	%	%	%	%	%	%	%
Sales	28	12	20	15	51	66	1	7
Profit	—	1	5	4	85	88	10	7
Cash	38	17	39	9	23	64	—	10
General and administrative expense	—	—	4	2	90	90	6	8
Distribution expense	—	—	5	3	90	90	5	7
Factory overhead	3	2	10	13	83	82	4	3

mined norms such as budgets and standard costs are to be preferred for comparative purposes. It is interesting to note that in the manufacturing groups, standard costs are used by approximately two-thirds of the respondents in both Australia and America.

Direct costing is used by only 14% of the responding Australian, as against 36% of American, companies. In their replies to the original questionnaire circulated by the author in Australia, 80 of the 157 companies reported using "direct costing," but a personal follow-up inquiry and a supplementary questionnaire reduced this figure to 22 (14%). Many respondents seemed to have confused the concept of direct costing with direct material, labor, and expense as applied to jobs, processes, and products.

Control Reports and Devices

Table IV shows the frequency with which control reports, comparing actual and standard performance, are prepared. In the United States and Canada, most companies in the sample used monthly reports. In Australia, however, tighter financial control is apparently necessary since weekly and daily reports are more common, particularly for cash and sales. A large percentage of companies in both countries, however, appears to make adequate use of routine performance reports.

The extent to which various techniques are used for over-all control of performance is shown in Table V. The budget is the most widely used control tool for over-all performance both in Australia (89%) and in America (95%). The Return on Capital Employed device is reported used in 59%

TABLE V

PERCENTAGE OF COMPANIES USING VARIOUS TECHNIQUES FOR OVER-ALL CONTROL OF PERFORMENCE

Technique Used	*Manufacturing*		*Public Utilities & Transport*		*Wholesale and Retail*		*Finance*		*Miscellaneous*		*Total*	
	Aust.	*USA*	*Aust.*	*USA*	*Aust.*	*USA*	*Aust.*	*USA*	*Aust.*	*USA*	*Aust.*	*USA*
Total number of replies	89	315	12	40	15	16	7	10	8	6	131	387
	%	%	%	%	%	%	%	%	%	%	%	%
Budgets	92	95	100	100	80	100	43	100	87	67	89	95
Return on capital employed	62	57	50	80	67	69	29	10	50	67	59	59
Break-even analysis	34	43	17	13	27	25	14	10	25	33	30	38
Cash forecasts	85	77	83	75	87	75	57	20	87	67	84	75

of cases in each country, but only 39% of Australian respondents applied it to product lines and only 23% to divisions of their organization. Break-even analysis is used only slightly less in Australia than in America. Though this device has certain limitations, it can be very useful in making management aware of the factors influencing profit and thus could be used to a greater extent. Cash forecasts are used in more cases in the Australian companies (84%) than in the American (75%). By and large, a fairly extensive use of the various techniques for over-all control appears to be made, although in this regard also, Australia appears to fall behind the United States and Canada.

Conclusions

It is now possible to draw together the threads of these two surveys. The points at issue are the uses made of the management accounting techniques of budgets for planning and control purposes and other standards for evaluating performance. In 1950 it was generally accepted that these were used to a considerably lesser extent in Australia and the United Kingdom than in America. Without wishing to generalize too widely (on the basis of the selective samples used), it would nevertheless appear that, in the better-than average companies compared, Australia still makes a lesser use of the main techniques than do the United States and Canada. The two surveys seem to support the belief, however, that through the joint efforts of professional management and accounting associations over the last ten years, the knowledge and use of management accounting techniques have been increased. But there is still a need for a wider and more effective application of management accounting techniques.

Australians are coming to realize that growth and survival, not only of industry but also of their accounting profession, are necessarily keyed to an awareness of change and an efficient response to it. There is a pressing need for a further management re-orientation of the accounting function. Accountants responsive to this need have the opportunity of making a real contribution to modern society, but this opportunity will be grasped only by those who can think in management terms, who are concerned more with the future than with the past, and who have the imagination and perception to recognize the inevitability of change and its consequent impact on accounting service.

If management accounting in Australia is to make its full contribution to increasing the nation's productivity, we may conclude that educational and professional exchanges with the United States and Canada should continue in the future as they have in the past.

COMPARATIVE PROFESSIONAL ACCOUNTANCY—SOUTH AMERICA

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THE following South American bodies were represented at the 1952 International Congress:

From Argentina—*Federación de Colegios de Doctores en Ciencias Económicas y Contadores Públicos Nacionales*
From Bolivia—*Colegio de Economistas* and *Federación Nacional de Contadores*
From Brazil—*Conselho Federal de Contabilidade* and *Federacao dos Contabilistas do Estado de São Paulo*
From Colombia—*Instituto Nacional de Contadores Públicos*
From Peru—*Colegio de Contadoers Públicos del Perú* and *Instituto de Contadores del Perú*
From Uruguay—*Colegio de Doctores en Ciencias Económicas y Contadores del Uruguay*
From Venezuela—*Colegio Nacional de Tecnicos en Contabilidad*

Argentina

As early as 1836, Argentina recognized and laid down certain rules for individuals entering the accounting profession. Candidates were required to obtain an official statement of ability, to be Argentine citizens over twenty-five years of age, and to pass examinations in law, arithmetic, and accountancy. These examinations were held under government auspices, but the number of public accountants in practice was established at a maximum of eight. In 1863, the restrictive clause limiting the number of practitioners was abolished. Thereafter, the profession began to decline because of the entry into it of large numbers of notaries and solicitors.

The Argentine College of Accountants (Colegio de Contadores Públicos) was formed in 1892, with the aim of reviving the profession and raising examination and professional standards. Five years later its rules were amended to permit foreigners, as well as native Argentinians, to enter the profession. At that time a system of examinations based on those of the Scottish and English Institutes came into force. By 1905, the College had enrolled 100 members, and the profession began to play a more important role in commercial, affairs.

At the present time, the profession is regulated by an act passed in March, 1945, by which those possessing a university diploma (Contador Público) are entered in an Accountants' Register. Non-graduates also can be entered in this register, if they submitted an application in 1945 and were active as independent accountants before December 31, 1944. However, the activities of a non-university graduate, practicing as an accountant, remain limited to the activities he performed before December 31, 1944. An accountant can serve in a public capacity only if his name was mentioned in the register. His registration number must always be mentioned under his signature; non-graduate accountants must also state the restrictions of their powers.

Holders of diplomas of foreign universities may also practice as public accountants in Argentina if they are able to satisfy the government that the curriculum of their universities fulfilled all the requirements of the Argentine universities. If they are unable to do this, they must satisfy the Argentine examiners in regard to subjects not covered.

In order to obtain the title of *Contador Público*, a student must first complete five years in a specialized secondary school

where, in addition to normal school subjects, he must enroll in courses in bookkeeping, commercial and civil law, shorthand and typing, and business administration. He is then eligible for entry in one of the Argentine universities where, after a further course of five years, he obtains a Bachelor's degree.

Professional councils have been set up by law in the federal capital and in most of the provinces. Their primary objects are to maintain a professional register in which all accountants must be inscribed before commencing practice in that particular jurisdiction, to advise the government on all questions pertaining to the profession, and to prepare rules of professional conduct and impose disciplinary sanctions when necessary.

Certain professional associations have been formed in Argentina. The most important is the College of Graduates of Economic Sciences (Colegio de Graduados en Ciencias Economicas), founded in Buenos Aires in 1892. This society has an extensive technical library and is constantly striving through its committees, monthly bulletins, bimonthly magazines and lectures, and other means to maintain and improve professional standards in Argentina. One of its committees has drawn up a code of generally accepted accounting standards while other committees have advised the government on commercial legislation.

For many years, professional accounting and auditing in the Argentine have been almost entirely in the hands of British and American firms. For example, an office was opened by Price Waterhouse & Co. and W. B. Peat in Buenos Aires in 1912. Previously, the firm of Touche, Faller & Co. had established facilities there. In 1920, these firms were combined under the style of Price, Waterhouse, Faller & Co.; from 1935, the firm was known as Price, Waterhouse, Peat & Co., indicating to the public the association in South America of Price Waterhouse & Co. with Peat, Marwick, Mitchell & Co.

In recent years, Argentine public accounting firms have become increasingly important. In Buenos Aires alone, today, there are over 5,500 registered public accountants. Many of these are not in practice but are employed by the public administration, especially in the Revenue Department. In the early years, practice was influenced by the introduction of British capital and the establishment of British companies. More recently, however, other influences have appeared. The official form of balance sheet for limited liability companies appears to have been affected by modern American practice and by the 1948 British Companies Act.

Limited liability companies in the Argentine are required to have their annual financial statements audited; this legal provision also covers banks and insurance companies. Balance sheets must be filed with fiscal authorities if the companies they represent have a capital exceeding $400,000, and an annual turnover exceeding $1,000,000. All applications for quotation on the Stock Exchange must be accompanied by audited financial statements. Generally, only a formal certificate is issued by the public accountant, stating that the balace sheet is in agreement with the accounting records; sometimes this certificate is restricted to a signature. Infrequently, detailed certificates are provided, declaring that the amount of accounts is correct and that the balance sheet provides a true picture of the financial position of the company.

Bolivia

In Bolivia, practice is complicated by the fact that the Central Government is divided into nine departments, each of which is organized into provinces and cantons. The tax system is extremely com-

plex, being imposed on both the national and local levels, and covering not only income earned but also public health stamp duty, road tax, tourist tax, etc.

Until 1928, the financial development of Bolivia was disorganized but in that year a committee of American financial experts known as the Kemmerer Mission made recommendations which were implemented by measures to control public expenditures. Thereafter, improvements were affected in public finance and in the organization of universities, which were subject to government control as their upkeep was financed by special taxes.

The profession of accountancy in Bolivia today is in an undeveloped status. There is no practical training for the profession, since degrees in accountancy, as granted by the universities and associated bodies, are wholly academic. The two main bodies of acountants listed in the opening paragraph form the membership of a national register of authorized accountants whose privileges and obligations are carefully defined. Although professional qualifications are not widely demanded for accountants in public service, the two bodies are endeavoring to obtain greater recognition of their members. Unfortunately, prevailing salaries are not sufficiently attractive to entice accountants into the profession; instead, they prefer to enter commerce and industry.

Brazil

There is no body in Brazil comparable to American and British professional societies. However, thirty practitioners residing in São Paulo recently formed The Abacus Society. The membership of this body consists of sixteen English and four Scottish Chartered Accountants, four Incorporated Accountants, two Certified Accountants, two American C.P.A.'s, and two members of the New Zealand Society of Accountants. Some English firms are operating in Rio de Janeiro, São Paulo, and Pernambuco, the facilities having been established as early as 1915 in the first-named city.

The following grades of accountancy qualification presently exist in Brazil: Accountant, and Bookkeeper (these two degrees were conferred under prior legislation); Bachelor in Accounting, and Technician in Accountancy (degrees conferred under current legislation). The activities of the Brazilian profession are regulated by federal law, with control effected through the medium of a federal council and regional (state) councils. The state councils are subordinate to the federal.

To follow the accounting profession, it is necessary to obtain a diploma from a recognized college, subject to inspection by the Ministry of Education. This diploma must then be registered at the Superintendence of Commercial Teaching (a department subordinate to the Ministry of Education) and at the appropriate regional council of accountancy. For both the Bachelor in Accounting and the Technician in Accountancy degrees, it is necessary to take a general secondary education course. The latter degree, in addition, requires a further three-year course in which the subjects are general accounting and bookkeeping, economics, commercial organization, general merchandising, general and commercial law, and elements of statistics. A further year's study is then required for the Bachelor's degree, with subjects including advanced accounting, auditing, mathematics, statistics, political economy, and financial techniques. The Bachelor and Technician degrees eliminate the requirement for the holder to serve under articles or to have any practical experience.

Functions of persons holding professional qualifications are defined by law as "the organization of accounting systems and the maintenance of such systems,

preparation of accounts, audits in connection with judicial proceedings, general audits, and the rendering of assistance to the financial boards of corporations." The functions of Bachelors are summarized as follows: Director or executive of large companies; high-grade civil servant; political administrator; presiding at government accounting tribunals; representatives of the government for establishing training courses in administration, economics and finance; and arbitrators in administrative, economic and financial disputes.

As no statutory requirements obtain in Brazil for the audit of annual accounts of corporations by independent public accountants, such as are required by the British Companies Act, or any auditing requirements comparable to those in the United States in connection with filing of financial statements with the Securities and Exchange Commission, the functions of Brazilian accountants tend to be concentrated on accounting duties. Both Brazilian corporation law and income tax legislation require that annual corporation accounts be signed by the accountant responsible for the preparation of such accounts.

Commercial accountancy in Brazil is regulated by the Commercial Code of 1850, which is based on the Napoleonic Code, with other accounting requirements incorporated in the Sales Tax and Income Tax Laws.[1] Under the Code, all traders must keep a journal and a letter copy-book but only the daily totals of sales and expenses need be recorded. The annual balance sheet must be written in the journal, and all outward letters with any accompanying accounts must be copied in the letter book. Both the journal and the letter book must be bound, the folios numbered, and the books rubricated before use by an official of the Departamento do Comercio, who initials every folio and completes an opening certificate on the first page.

At the Fifth Accountancy Congress held in Bello Horizonte, a code of professional ethics was adopted for Brazilian accountants. This code consists of thirty-one articles, generally meeting overseas standards.

It is probable that in modern Brazil the only general audits are those carried out by United States and British firms of public accountants who have offices or associate firms located there. The greater part of the clientele of these firms represents Brazilian subsidiaries, branches, or affiliates of international, American, or British companies. The necessity for the audit emanates from the requirements of the country of domicile of the parent company, rather than from the need to meet Brazilian legal obligations. In addition to the firms already mentioned, Arthur Andersen & Co.; Deloitte, Plender, Griffiths & Co.; Haskins & Sells; Turquand, Youngs & Co., and other overseas organizations have offices in Brazil.

Foreign accountancy diplomas and qualifications are not recognized in Brazil, and any foreign accountant wishing to practice as a Brazilian accountant must first obtain a Brazilian degree. This involves taking the examinations specified by the federal council, although certain exemptions are made for overseas professional experience. The slow growth of the profession in Brazil has arisen from the fact that the majority of national companies are still family businesses, and only in the years after World War II has the stock of such companies been offered for public subscription. No doubt this recent development will, in due course, bring as a logical sequence some form of statutory auditing requirements relative to financial statements issued with prospectuses and annual accounts. The Abacus Society, whose address is Kixa Postal 7137, Sâo Paulo, is prepar-

[1] A. D. Cuthbertson, "Commercial Accountancy in Brazil," *The Accountant*, November 26, 1955.

ing for this development by holding frequent meetings for discussion of current problems of the Brazilian accounting profession. The Tenth International Management Congress was held in São Paulo in 1954, under the auspices of the International Committee for Scientific Management. This meeting directed attention to the necessity of introducing scientific management and management education in Brazil, and indirectly touched upon the status of the accounting profession there.

Chile

In Chile, accountancy is in its initial stages as a profession. British Chartered Accountants established offices in Valparaiso as early as 1912, and branches have been set up in Santiago, Concepción, and other cities.

The Instituto de Contadores del Perú was formed in Lima, Peru, in 1900. It admits three classes of members: expert accountants and auditors; bookkeepers and accountants; and students. One of the chief aims of the Instituto is to advance the profession. British Chartered Accountants were established in Lima in 1925, serving Colombia and Ecuador from their Lima offices.

In 1825, the Tribunals of Justice of Uruguay first made a clear distinction between bookkeepers and public accountants. All nationalities were represented in the profession. Not until 1893, however, was the Colegio de Doctores en Ciencias Económicas y Contadores del Uruguay formed, a small pioneering association which, ten years later, had achieved a membership of seventy. Candidates were required to obtain a university diploma, and the program of studies included bookkeeping, civil and commercial law, liquidation of estates, and bankruptcy practice.

Brazilians, Chileans, Peruvians, and Venezuelans now go to the United States to pursue university courses in accountancy. A large number of South Americans are employed in the accounts department of the United Nations headquarters. Colleges in every South American country except Paraguay provide education up to the matriculation standards of British universities and to the entrance standards of American universities. Familiarity with American and British working methods and the modernization of commercial procedures have added to the improvement of accounting techniques. Even in remote districts, the professional accountant is in demand because of the great changes in tax law since the war. Distances are very great and transportation facilities in South America are limited. The Andean regions, where the railway runs across the mountains at sixteen thousand feet, have restricted the exchange of professional ideas and even the acceptance of professional appointments.

STATUTORY INFLUENCE ON TREASURY STOCK ACCOUNTING

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THE Committee on Concepts and Standards Underlying Corporate Financial Statements of the American Accounting Association has taken the position, concerning treasury stock accounting, that "to an important degree" statutory requirements are "controlling in the reporting of such transactions."[1] A majority of states impose limitations on treasury share purchases which are based on corporate surplus. A common limitation is to restrict the amount which a corporation can pay for its own shares to the balance in its Retained Earnings account. This retained earnings restriction is lifted when the treasury shares are reissued or retired. The accounting technique of recording treasury stock at cost and presenting it in the balance sheet as a deduction from total shareholders' equity, with a corresponding restriction of retained earnings, conforms to this legal requirement. When the treasury shares are reissued or retired, the Treasury Stock account is eliminated and the restriction on retained earnings is removed. Accounting literature is replete with descriptions of this procedure.

However, rather than a removable restriction, some states require a permanent reduction in corporate retained earnings for the cost of reacquired shares. Accounting for treasury stock transactions under these circumstances is a matter to which accountants have devoted little attention. Therefore, the purpose of this paper is to analyze statutory provisions of this type and to suggest applicable accounting procedures. Since a detailed treatment of the various state laws is beyond the scope of this article, particular emphasis will be placed on the California statute.

First, accounting for the acquisition of treasury shares will be discussed. It will be shown that a Treasury Stock account is not needed, and that charges arising from treasury stock purchases should be applied directly to retained earnings. Thus, treasury stock purchase and disposition transactions are completely divorced. The remainder of the discussion will be devoted to an investigation of the methods of accounting for the various treasury stock disposition transactions, i.e., sale, retirement, and reissue as a stock dividend.

Accounting for the Acquisition of Treasury Shares

The primary purpose of legal limitations on treasury share acquisitions is to prevent capital impairment. One limiting device is to restrict, generally, the ability of a corporation to buy its own shares to those situations wherein retained earnings exist which are capable of absorbing the purchase price of the shares to be acquired. This same retained earnings requirement must ordinarily be met by a corporation planning to declare a cash or stock dividend. Both dividends and treasury share purchases are considered legally as withdrawals of corporate assets in favor of stockholders. With reference to the legal restrictions on such stockholder withdrawals of corporate assets, Ballantine and Hills write as follows:

"The policy limiting both dividends and share repurchases is fundamentally the same, namely, to preserve some minimum of financial responsibility. This is sought

[1] *Accounting and Reporting Standards for Corporate Financial Statements*, American Accounting Association, 1957, p. 7.

to be attained by establishing an accounting yardstick or financial test for the protection of creditors before the management is given authority to order withdrawal of assets."[2]

Existence of an adequate retained earnings is one element of the "accounting yardstick" referred to in the preceding quotation. California courts have held that when retained earnings do not exist and the purchase of shares is not one of the few acquisitions permitted "out of" stated capital, the purchase transaction is invalid.[3]

The most direct manner of accounting for treasury share acquisitions in compliance with a law requiring a permanent reduction in retained earnings is to charge the Retained Earnings account for the cost of shares acquired. Use of a Treasury Stock account is not to be recommended because it suggests an ultimate disposition of such an account upon reissue or retirement of the shares. Yet, the accounting entries for a subsequent disposition of treasury shares are in no way influenced by the acquisition transaction which simply resulted in a diminished retained earnings.

Either a permanent reduction or temporary restriction of retained earnings has the same effect on the corporate balance sheet until some disposition is made of the treasury shares. However, the use of a Treasury Stock account seems proper only in the case of a temporary restriction. If the account is used where a permanent reduction applies in law, the reader of the corporate statements might incorrectly conclude that a temporary restriction exists which will be lifted when the treasury shares are reissued or retired. In such cases dispensing with the account appears to be the more acceptable solution.

Accounting for the Sale of Treasury Shares

It has been recommended that a reissue of treasury shares be treated in the corporate accounts as an original issue when the purchase of treasury shares resulted in a pro-rata reduction of stated capital and paid-in surplus.[4] This technique, while recognizing the dissociation of the acquisition and disposition transactions, is not the proper procedure to follow when the cost of treasury share purchases has been charged to retained earnings. California law, which requires a permanent retained earnings reduction for treasury share purchases, prescribes the following accounting treatment for their reissue:

"If the shares are reissued, the amount of the proceeds shall be attributed to paid-in surplus insofar as an excess of net assets over the amount of stated capital results therefrom."[5]

Compliance with this requirement would ordinarily involve a credit to paid-in surplus for the entire proceeds of the reissue transaction. The provision has even been interpreted in such a way as to require a paid-in surplus credit for all treasury share resales. Moonitz and Staehling maintain that in California "the credit *must* go to paid-in surplus" for treasury share reissues.[6] However, another possible interpre-

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[2] Henry Winthrop Ballantine and George S. Hills, "Corporate Capital and Restrictions Upon Dividends Under Modern Corporation Laws," *California Law Review*, March 1935, p. 230.

[3] *Mindenberg v. Carmel Film Productions*, 132C.A. 2d 598, 282 P. 2d 1024 (1955); *Tiedje v. Aluminum Taper Milling Co.*, 46 C. 2d 450, 296 P. 2d 554 (1956).

[4] American Accounting Association, *op. cit.*, p. 7; William A. Paton and William A. Paton, Jr., *Corporation Accounts and Statements* (New York: MacMillan, 1955), p. 188.

[5] *California Corporations Code*, Section 1714.

(Oklahoma's provisions are similar to those of California. Charges arising from treasury stock purchases are usually directed to retained earnings. *Oklahoma Business Corporation Act*, Section 1.136.

The provision concerning the resale of treasury shares in Oklahoma reads as follows:

"The consideration received for treasury shares shall not be credited to earned surplus, but shall be credited to paid-in surplus to the extent that the then fair value of the assets of the corporation, including such consideration, shall exceed the aggregate amounts of its debts and liabilities plus stated capital." *Ibid.*, Section 1.139.)

[6] Maurice Moonitz and Charles C. Staehling, *Accounting—An Analysis of Its Problems* (Brooklyn: Foundation Press, 1952), Vol. II, p. 167.

tation of the California statute should be considered. The California Corporations Code does state that the proceeds from treasury stock sales be credited to paid-in surplus "insofar as an excess of net assets over the amount of stated capital results therefrom." Should there be no excess of net assets over stated capital, the California law does not indicate the procedure to follow. Net assets would not exceed stated capital when a deficit exists. A corporation could have purchased treasury shares at a time when retained earnings was sufficient to absorb the acquisition cost and subsequently suffered operating losses which created a deficit condition. Proceeds from the sale of treasury shares at this time would not represent entirely, if at all, an excess of net assets over stated capital. For example, a corporate balance sheet might show the following shareholders' equity:

Common Stock—$100 par, 100 shares issued of which 10 are in the treasury	$10,000
Deficit	800
Total Shareholders' Equity	$ 9,200

The price paid for the treasury shares is unimportant—it was deducted from the retained earnings which existed at the time of acquisition. A sale of the ten treasury shares at $80 or less per share would not yield adequate proceeds to produce an excess of net assets over stated capital. Apparently, then, paid-in surplus is not to be credited, according to the California Corporations Code. Stated capital was credited when the shares were originally sold, and Ballantine and Sterling state, "Upon their reissue these shares do not increase the stated capital liability."[7] The only remaining alternative is to credit retained earnings. Support of the theory that retained earnings should be credited in these circumstances is found in the predecessor to the current California statutory provision which more clearly stated that the consideration received for treasury shares "shall be added to paid-in surplus except as far as needed to write off a deficit of net assets below the amount of stated capital."[8] The current California provision appears to be a rewrite of this former section, but lacks the clarity of its predecessor. If the intent of the present law is to keep the rule requiring a retained earnings credit when treasury shares are sold by a company with a deficit, a permanent reduction in retained earnings is not necessarily effected when treasury shares are acquired.

To pursue the illogicality of this provision further, it will be assumed that the corporation referred to in the preceding example sold the ten treasury shares for $100 per share. The following entry would then be required to satisfy this interpretation of the law:

Cash	$1,000	
Retained Earnings		$800
Paid-in Surplus—Sale of Treasury Stock		200
To record the sale of ten shares of common treasury stock at $100 per share. Retained earnings is credited for the amount of the deficit existing at this time.		

No more than $800 may be credited to retained earnings since any amount beyond that is increasing the excess of net assets over stated capital and must be attributed to paid-in surplus. This single transaction has resulted in the elimination of a deficit and the creation of a paid-in surplus. A more reasonable requirement would direct all credits from treasury stock sales to paid-in surplus. By action of the corporate board of directors any paid-in surplus resulting from this transaction could then be applied to the write-off or reduction of a deficit.

A California corporation which does not

[7] Ballantine and Graham L. Sterling, Jr., *California Corporation Laws* (Los Angeles: Parker and Co., 1949), p. 226.

[8] *California Civil Code*, 1932, Section 342(b).

have a deficit should credit paid-in surplus for the proceeds of its treasury stock sales—under current law. As a result, the reduction in retained earnings caused by the purchase of these shares is permanent. Yet, the severity of this regulation has been diminished considerably by recent changes in statutory provisions concerning dividends. A 1957 amendment to the California Corporations Code made permissive a charge to paid-in surplus for cash dividend declarations on common shares for companies with a single-class stock structure.[9] (Charges to paid-in surplus for preferred dividends had been legal for many years.) It is not inconceivable that paid-in surplus and retained earnings eventually will be treated as equally available for charges resulting from dividend declarations, as in Delaware.[10] As paid-in surplus becomes more "available" for dividend charges, the notion of a permanent reduction in retained earnings for treasury stock purchases loses its validity. Although the retained earnings balance which may be charged for dividends stands diminished by the acquisition cost of treasury shares, a subsequent resale creates a paid-in surplus which is also chargeable for dividends. To illustrate, the following shareholders' equity will be assumed for a California corporation:

Capital Stock—$100 par, 100 shares issued and outstanding	$10,000
Retained Earnings	5,000
Total Shareholders' Equity	$15,000

After a purchase of treasury shares for $3,000 and a subsequent resale of these shares for $4,000, the stockholders' equity will appear as follows:

Capital Stock—$100 par, 100 shares issued and outstanding	$10,000
Paid-in Surplus—Sale of Treasury Stock	4,000
Retained Earnings	2,000
Total Shareholders' Equity	$16,000

Under the current law both the Retained Earnings and Paid-in Surplus accounts may be charged for dividends, a total of $6,000. Prior to the 1957 amendment, only the $2,000 balance in the Retained Earnings account would have been available for this purpose. Liberalization of dividend provisions concerning paid-in surplus is changing what was formerly a permanent reduction in surplus available for dividend charges when treasury shares are purchased to a restriction on such surplus which can be removed by the subsequent sale of these treasury shares.

Retirement of Treasury Shares

In accounting for treasury stock transactions a distinction should be made between the purchase and retirement of shares. In California, retirement, as distinguished from share purchase, involves the restoration by directors' action of the acquired shares to the status of authorized and unissued shares. If a corporation's articles prohibit their reissue, the purchased shares are no longer considered as "authorized."[11]

Accounting for the retirement of treasury shares is described in one accounting textbook as follows:

"Such stock, if formally canceled in accordance with requirements of state law, would revert to the status of unissued stock and would be accompanied by a reduction in legal or stated capital."[12]

Vatter approves of this technique when he states, "Cancellation of course would reduce the stock accounts by par or stated amounts, the rest of the cost being absorbed in retained earnings."[13]

A close analysis of the law indicates that

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[9] *1957 Amendments to Corporations Code*, Section 1500(c).

[10] *General Corporation Law of Delaware*, Section 154.

[11] *California Corporations Code*, Section 1713.

[12] Wilbert E. Karrenbrock and Harry Simons, *Intermediate Accounting—Standard Volume* (Cincinnati: South-Western, 1958), p. 435.

[13] William J. Vatter, "Corporate Stock Equities," in *Handbook of Modern Accounting Theory*, p. 377, Morton Backer, ed. (New York: Prentice-Hall, 1955).

the procedure described above is not acceptable for California corporations. A subsequent retirement of shares whose cost has been charged to retained earnings has *no* effect on the corporate accounts. Even if the articles of incorporation prohibit the reissue of treasury shares, no journal entry is required other than for their purchase. Stated capital is not reduced because of purchase or retirement. The board of directors may resolve, with stockholders' approval, to reduce the stated capital because of share retirement.[14] Such action would result in the following entry:

Common Stock	$xxx	
Reduction Surplus		$xxx
To record the reduction of stated capital by the amount attributable to the retired shares.		

The entry which reduces the stated capital does not reinstate the retained earnings to which the acquisition cost was applied. Regardless of whether the directors elect to reduce the stated capital, a purchase and coincident or subsequent retirement of shares has the same effect on retained earnings as a dividend declaration charged thereto. In any case, a reduction of stated capital is an event completely independent of share retirement.

It should be noted that the purchase of corporate shares "out of" stated capital may be permitted by statute. California law restricts such purchases to only a few transactions,[15] e.g., to eliminate fractional shares. Oddly enough, even when shares are purchased under this provision, i.e., "out of" stated capital, there is no automatic reduction in the amount of stated capital. A resolution of the board of directors is necessary if stated capital is to be reduced. In the absence of such a resolution the accountant will be unable to select an existing net worth account to be charged for the share purchase. An account titled "Repurchase from Stated Capital," shown as a reduction in total shareholders' equity, could be used for the acquisition cost charge until such time as action is taken by the board of directors. These particular provisions of the law indicate a need for clarification. The complete lack of relationship between share purchase or retirement and stated capital reduction transactions must be more clearly recognized.

Reissue of Treasury Shares as a Stock Dividend

Legal requirements for treasury stock acquisitions and stock dividends combine to produce results that are difficult for either lawyers or accountants to understand. In 1946, Ballantine wrote:

"The reissue of treasury shares by a corporation as a purported stock dividend cannot be approved, since there is no capitalization of surplus. The stated capital was not reduced when the treasury shares were acquired, and it is not increased upon their reissue. Such a so-called stock dividend is simply stock watering which does not represent net worth or surplus, but only a prior disbursement of the purchase price to a former shareholder."[16]

Three years later, as co-author with Sterling, Ballantine again declared several times that the reissue of treasury shares does not increase stated capital in California.[17] Yet in the same text these authors describe the accounting procedure to be followed for a stock dividend, including the "transfer from surplus to stated capital," and state, "This would apply equally to a dividend declared in treasury shares."[18] Regulations concerning accounting for treasury shares are so com-

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[14] *California Corporation Code*, Section 1904.
[15] *Ibid.*, Section 1706.
[16] Ballantine, *Ballantine on Corporations* (Chicago: Callaghan, 1946), p. 484.
[17] Ballantine and Sterling, *op. cit.*, pp. 218, 223, 224, 226.
[18] *Ibid.*, p. 192.

plex that even these eminent legal authorities, one of whom was the leading draftsman of the General Corporation Law which was adopted in California, encounter difficulty in attempting to interpret them.

Since the California Corporations Code makes no reference to the possibility that only unissued shares may be used for stock dividends, it seems evident that a California corporation may declare a dividend in treasury shares. Assuming that the amount capitalized per share is the par or stated value, an issuance of treasury shares as a stock dividend would be accounted for in the following way:

Retained Earnings	$xxx	
Stated Capital from Treasury Stock Dividend		$xxx
To record the issue of treasury shares as a stock dividend.		

Retained earnings would stand diminished by the sum of: (1) the cost of the treasury shares to the corporation and (2) the amount transferred to stated capital for the stock dividend.

If accountants accept the stated capital concept, the legal requirements for stock dividends in treasure shares are easier to understand. The double charge to retained earnings and double credit to stated capital (once upon original issue) simply restate the corporate net worth in such a way as to reduce that portion which may be charged for distributions to stockholders and increase that portion which serves as the "trust fund." The matching of outstanding shares with the amount of stated capital is of little importance under the stated capital concept. Therefore, the fact that two of the stated capital components derive from the same shares is not objectionable, except when the law requires that the stated capital per share attributable to outstanding shares be computed for use in recording certain corporate net worth transactions.

Conclusion

Recognition in the corporate accounts of statutory provisions prescribing a permanent reduction in retained earnings for treasury stock purchases requires a major departure from conventional net worth accounting. The acquisition and disposition of its shares by a corporation are totally unrelated events.

Furthermore, an analysis of certain provisions of corporation laws affecting accounting procedures reveals the need for legislative clarification. Accountants have an obligation to assist in this matter. The field of accounting is vast and complex, and it can hardly be assumed that legislative draftsmen will be so well informed as to recognize all the accounting technicalities which should be embodied in a proposed law. Ray Garrett, Chairman of the Committee on Corporate Laws of the American Bar Association which drafted the Model Business Corporation Act, acknowledges this point when he states, "The Committee has approached the field of accounting with diffidence. . . . "[19]

[19] Ray Garrett, "History, Purpose and Summary of the Model Business Corporation Act," *The Business Lawyer*, November 1950, p. 5.

CAN THE BALANCE SHEET REVEAL FINANCIAL POSITION?

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THE concept of financial position and its diversified meanings has so far received very little attention in the literature of accounting. This is particularly true in connection with the balance sheet, which many leading accounting textbooks define broadly as "A statement reflecting the financial position of an enterprise as of a specific date," without due qualification as to the specific meaning of "financial position." The acceptance of this broad definition of the balance sheet has led to a general and undue reliance for all purposes upon the data in this statement. This unqualified definition has frequently resulted in serious misinterpretation of the data presented and has been the cause of severe criticism of the accounting profession. Mr. J. N. Frank, recognizing this problem, writes: "It is possible that our all-purpose balance sheet cannot faithfully serve all of its masters—the divergent and sometimes conflicting interests of creditors, stockholders, management, tax collectors, the regulatory agencies."[1]

A multitude of interests have arisen from the tremendous growth that industry and business experienced during the last half-century. Absentee owners, managers, creditors, governmental agents, labor, and consumers are interested in different data—in many instances in different values—and therefore have different concepts of financial condition. Mr. Carman G. Blough has pointed up these differences and the difficulties arising from them: "However, when preparing general-purpose financial statements such as those customarily distributed to stockholders, creditors, bankers, and others, it is often very difficult to decide just what should be reported."[2] This article will explore the concepts of financial position held by the various groups interested in a business and will attempt to determine whether or not the balance sheet as presently constituted can serve these different groups.

Creditors' concept of financial position

Creditors in general view the information given in the balance sheet concerning assets, liabilities, and equity from a different point of view than that of management or owners. Their interest lies mainly in the security which backs up loans extended. Therefore, a balance sheet of value to creditors must incorporate information that will allow them to judge a debtor's financial position and that will, thereby, meet the creditors' concept of financial position.

Since within the group of creditors there are different interests to be served, a further subdivision of creditors as a class is necessary. The time element in connection with loans must be taken into consideration and a distinction between long term and short term credit should be made. The amount of credit extended to a debtor should be compared with either the borrower's or the lender's total capital, and the frequency of the loans extended to a debtor should be noted. There is also the question of whether or not the credits are secured or unsecured. Extremely impor-

[1] Jerome N. Frank, "Accounting for Investors, The Fundamental Importance of Corporate Earning Power," *The Journal of Accountancy*, Vol. 68, Nov., 1939, p. 301.

[2] Carman G. Blough, "Challenge to the Accounting Profession in the United States," *The Journal of Accountancy*, Dec., 1959, p. 38.

tant to the creditor in judging the financial position of a debtor is the creditor's interest in the borrower's business either as a distribution layout, a supply source, or as a major consumer of his goods.

Different groups of creditors would interpret the same data differently, and would judge differently the financial position of a debtor. Roy A. Foulke mentions in *Practical Financial Statement Analysis*, "A mercantile creditor, a commercial banker. . . will interpret identical information somewhat differently."[3] Therefore, creditors may be classified as one of two types to aid in the development of their concepts of financial position:

1. Creditors without a substantial interest in the borrower's enterprise;
2. Creditors with a substantial interest in the borrower's enterprise.

The more a creditor is removed from having a substantial interest in the borrower's business, the less he will view the assets of the borrower listed in the balance sheet as items to be used for the purpose of generating a profit. The concept of a continuing concern is of little interest to him; present security is the most important factor. Present security, however, depends on present values, and neither cost nor replacement value will be satisfactory for demonstrating this security. Cost is historical and will in many instances have no relation to current values. Even if there should happen to be a relationship between cost and current values from year to year, the book adjustment for depreciation, amortization, etc., geared towards an equitable expense distribution, would bring these figures out of line with actuality. Replacement values, suggested by some writers without qualification, would not find justified application either, because, as has been pointed out, this kind of creditor is not interested in the value of a continuing concern, but rather in present security or security in the immediate future. Liquidating values are of primary importance, for they are the only true present values which could be secured in case of failure of the borrower's business. It must be kept in mind that a creditor without a substantial interest in the business will not hesitate to enforce a claim after it becomes past due.

From the foregoing, it can be generalized that a creditor with no substantial interest in the borrower's business will base his judgement of the enterprise's financial position on liquidating values, and that for this reason the present balance sheet does not meet his requirements. This shortcoming can be overcome, however, by preparing a "Statement of Affairs" such as the one used in bankruptcy accounting. The value of a statement of affairs for this purpose has been recognized; however it still has found only limited use. H. A. Finney and Herbert E. Miller write: "A statement of affairs may be submitted to a bank or other prospective creditor in support of a request for unsecured credit. The statement of affairs might be considered preferable to a balance sheet for that purpose . . ."[4]

An entirely different concept of financial position is held by creditors who have a substantial interest in the debtor's business. In many instances their status comes close to that of an owner, not in a legal sense, but in their expectations of either receiving income from their investments or of receiving some kind of continuous benefits for their own business. "They [stockholders and bondholders] share a common concern for the solvency, earning power, and future prospects of the business firm in which they have made capital commitments," writes Charles W. Gers-

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[3] Roy A. Foulke, *Practical Financial Statement Analysis*, McGraw-Hill Co., Inc., 4th ed., N. Y., 1957, p. 2.

[4] H. A. Finney and Herbert E. Miller, *Principles of Accounting, Advanced*, Prentice-Hall, Inc., 4th ed., N. Y., 1955, p. 188.

tenberg.[5] The recalling of credits by a creditor with an interest in the debtor's business lies in the distant future in most instances, and the interest of these creditors is with the continuation of the enterprise. The financial position of the enterprise will, therefore, not be judged on a current basis alone, but also on the enterprise's ability to maintain and increase its assets. Present values in the form of liquidation values will be of no importance as there is no intention of liquidating. Costs will be unimportant, too, for they have no relationship with the future, or possibly even with the present.

These creditors will use two yardsticks to measure the security behind the loans extended. First, they will decide whether or not the assets in their relationship to production are sufficient to assure solvency and continuation of the enterprise. The measure for this must be current replacement values, since there is the intent to continue the business. Unless current replacement values are used (adjusted, of course, for accumulated depreciation), not only will the loans and capital be impaired, but also the prospects for continuation of the business will be affected. Even though the creditor can expect only a nominal return of credit extended, he will be interested in seeing that the company maintains the real value rather than the monetary value, particularly in times of inflation. During deflation, the showing of assets at adjusted replacement cost will bring to his attention the impaired position of the enterprise in connection with the business's ability to meet nominal obligations.

However, the present assets alone are not sufficient security for the future. These assets have to be maintained and periodically replaced, which is only possible if the company has a sufficient income potential. So the second yardstick used to measure security is whether or not the assets of the enterprise can be maintained. S. J. Broad comes to the following conclusion: ". . . for a stable company the asset figures are relatively unimportant otherwise unless supported by earnings."[6] A. C. Littleton says in this connection, ". . . income (capitalized) is a primary basis for judging property value."[7]

The measure of an enterprise's present and future security depends upon the amount of profit the assets are able to produce. Thus, according to present usage, a creditor with a substantial interest in a company must refer to the income statement to evaluate the security shown on the balance sheet and to satisfy his concept of the financial position of an enterprise. This concept of financial position—assets on a current basis (replacement) and the ability of the enterprise to maintain them—cannot be incorporated into one statement, since two statements are involved. However, a balance sheet prepared for the creditor with an interest in the business would be of more benefit if current replacement values were used as a basis for the data given.

Owners' concept of financial position:

Within the owners' group, as within the creditors' group, there are several concepts of financial position to be developed. The relationship of the owner to the enterprise has an important bearing upon the owners' interpretation of financial data and upon the type of financial statement that will be most meaningful to them. According to this relationship between owner and enterprise, the following classifications of owners may be made:

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[5] Charles W. Gerstenberg, *Financial Organization and Management*, Prentice-Hall, Inc., 4th ed., N. Y., 1959, p. 366.

[6] Samuel J. Broad, "The Impact of Rising Prices Upon Accounting Procedures," *The Journal of Accountancy*, vol. 86, July, 1958, pp. 12–13.

[7] A. C. Littleton, *Structure of Accounting Theory*, American Accounting Association Monograph #3, p. 19.

1. Managing owners;
2. Liquidating owners;
3. Absentee owners.

The concept of financial position held by owner who serves as manager of an enterprise will be outlined in the following section. For the liquidating owner, a business can be disposed of either as a going concern or piecemeal, depending upon the circumstances. In either case, the financial positon of the enterprise will have to be interpreted as values to be realized, but these values will be different. The piecemeal liquidation is best shown on a statement of affairs, liquidation values being used as a basis for determining what can be realized. The dispositon of an enterprise as a going concern involves a different valuation; here, the unity rather than the individual items must be taken into consideration. The owner's concept of financial position in this case will be identical with that of the absentee owner's as developed below, with the exception that the liquidating owner looks for immediate realization of these values.

Primary attention is here given to the absentee owners and their concept of the financial position of an enterprise. This type of owner is the largest group in our present way of doing business under the corporate form. In most instances, the absentee owner has very little to do with the actual management of the enterprise; his influence is exercised indirectly through his voting on company policy. His primary interest lies in the financial worth of his investment and in the profits to be derived from it. He must refer to the income statement to determine the profits, and, as to the worth of his proportionate interest, the balance sheet does not at present give him all the pertinent information. As an alternative, he can refer to stock quotations, but, at least from an accounting point of view, this is not entirely satisfactory, since many important assets and their development are not revealed.

If the worth of the owner's investment is to be shown on a balance sheet, it must be decided which assets are to be included. The tangible assets are obviously important and are already included in the balance sheet, but many times the intangible assets have been omitted, particularly the group classified under goodwill. For example, a well-trained, loyal labor force should be included as an intangible asset, as should a good managerial staff, or a certain advantageous arrangement of machinery. So far, these intangibles have been included only under the term "goodwill," and since goodwill is only added to the balance sheet under certain circumstances, the result is generally an understatement of values.

Even when goodwill is included in the balance sheet, the grouping of all these intangible items under one heading conceals important developments that may have taken place within each individual group. Favorable and unfavorable developments may have been compensated by one another. Responsibility accounting is not possible under this method. These data should be listed separately in order that owners may be aided in evaluating the performance of management. When one is dealing with a going concern and intangible values are present, they should be considered as rightfully belonging to the owners, and omission is not justified.

In determining the worth of the owner's investment, the valuation of the assets recorded cannot rely satisfactorily on either cost, liquidating values, or replacement values. The total operating value of the unit as a whole will determine its worth; therefore it is not the sum of the individual items that establishes the value of an enterprise, but rather it is the worth of the unit as a whole that determines the value of the individual items. Wm. L.

Raby gives a very good demonstration of this concept of unity: "Somehow, in the family or in the accounting firm or with the lathe, the whole is greater than the sum of the parts."[8] (However, he fails to consider this value in his latter conclusions.) Many problems are, of course, presented when one is attempting to make this type of valuation, but it is important that here the concept of unity should be applied.

To summarize the absentee owners' concept of financial position, it can be generalized that the worth of the enterprise should be shown on any financial statement prepared for them, and that the concept of unity should be accepted for valuation purposes with the inclusion of certain intangible assets not shown on the balance sheet at the present time.

Management's Concept of Financial Position:

Because of the large number of management groups, each with special interests, no uniform concept of financial position can be developed, nor can these groups be classified for this purpose under one or two simple headings. Each group will necessarily have its own concept of financial position. Production management, personnel management, sales management, financial management, etc., view financial data from different aspects, and in preparing statements for these groups, pertinent information should be presented in different ways. It would be impossible to prepare one balance sheet that could incorporate all the information needed to meet the concepts of financial position of all the specialized groups in this field.

In spite of the fact that no one or two concepts of financial position can be worked out for this group, it still seems important that the specialized needs of this group should be met. That it has been recognized that the present balance sheet is not sufficient for management's purposes can be seen from the present practice of issuing special reports to compensate for the balance sheet's inadequacy. Management groups usually have only a partial interest in the total information now given on the balance sheet; whereas creditors and owners are interested in the totality of the assets or equity.

It would be impossible to give here the concepts of financial position of all the various management groups, but the following discussion of financial management shows the viewpoint of one of these groups and also reveals the incapacity of the present balance sheet to meet their needs. To financial management, the management group primarily responsible for and interested in the financial position of a business, the term "financial position" is synonymous with the colloquial use of the term in business, namely, its debt-paying ability as a going concern (including asset acquisitions, labor, creditors, etc.). Immediate paying ability of the enterprise will not be judged from the conservative point of view of a creditor without a substantial interest, but it will be judged on the basis of a continuing enterprise. For this purpose, assets must be listed according to their availability as to time and amount. Data pertinent to the concept of financial position of financial management has already been incorporated into the balance sheet to some extent (classification of items on the balance sheet, accounts receivable at realizable values); however, it is still doubtful whether the present balance sheet is adequate.

The balance sheet is but a moment's picture showing recorded assets, liabilities, and equity as of a specific date, and it is doubtful as to whether or not financial management can rely on this brief picture of a business for financial analysis. It could hardly be maintained that the de-

[8] Wm. L. Raby, "The Two Faces of Accounting," The Accounting Review, Vol. 34, July, 1959, p. 452.

velopment, changes, and adjustments of the items in the balance sheet are not constantly controlled, observed, and corrected as needed by management. Financial management must be dynamic. J. N. Frank says, "And to reflect even that year by a calculus of conditions at one moment of that year is indeed to indulge in artificiality."[9] But it is not only this that is questionable. Circumstances and practical acceptance bring about the preparation of the balance sheet at the time of the slack period of a business; therefore, if one accepts the theory of statistical sampling, this would be considered a rather poor sample to generalize the universe. A balance sheet prepared at a slack time is not a typical representation, and any inference from it may lead to undesirable results. Another factor in this connection, which would seem to render the balance sheet invalid for financial analysis, is the time involved in its preparation. The lapse of time between the closing of the books, the date for which the balance sheet is prepared, and the final draft of this statement is from two weeks to three months. Any data found on it are, therefore, past history.

It is true that all the objections mentioned above are technical in nature and could be overcome by more frequent and faster preparation of financial statements. With modern high-speed machines and inventory estimating methods, some steps toward this goal have been taken. However, there are also other serious drawbacks to the use of the balance sheet for the purposes of financial management. This group has, in many instances, a dual interest in certain assets. For instance, management wants to know how much is tied up in inventories and how much is realizable. The present balance sheet is not consistent in showing these values. Accounts receivable are shown at realizable values, but this account does not show how much is invested; on the other hand, inventories show only amounts invested. In either instance, supplementary information is needed for proper decisions. As the availability seems of greater importance in connection with planning (as is demonstrated in our budgeting procedures), it appears to be logical to show those assets which are to be disposed of during the period at realizable values for financial management purposes.

Assets which are not to be disposed of during the accounting period raise another problem. In the maintenance and replacement of these assets, financial management must consider replacement cost. Provisions for this purpose must come from income and in terms of current values, and it appears not only logical but quite justified to charge operation, with these amounts. For this reason, assets which are not to be disposed of and which are used in the operating process, should be shown at present adjusted replacement cost.

To summarize: no one concept of financial position can be developed for management due to the many specialized interests within this group, nor could all the necessary information possibly be recorded in one balance sheet. However, the present form of the balance sheet is certainly not adequate for the needs of management, as can be seen from the discussion of the one management group, financial management. Here, several improvements need to be made: faster and more frequent preparation of the balance sheet; listing of the assets to be disposed of according to amount and time of availability; and listing the assets which are not to be disposed of at present adjusted replacement cost.

Recommendations

1. Issuance of special purpose balance sheets. The accounting profession should

[9] Jerome N. Frank, *op. cit.*, p. 297.

seriously consider the development of special purpose balance sheets. This could result in the formulation of uniform techniques and methods, thereby giving weight, status, and value to such statements. "Obviously, a moral obligation rests on accounting to produce figures and reports that will avoid deception as much as possible," writes A. C. Littleton.[10] Special purpose balance sheets are already being prepared in connection with bankruptcy and reorganization, and this practice certainly has not resulted in any discredit to the accounting profession. The following statement by Mr. E. B. Wilcox can hardly be considered as valid: "The danger in undertaking to furnish single purpose financial statements lies in increasing confusion and misunderstanding, and in the possible misuse of such statements for unintended purposes."[11] To the contrary, it must be said that the present confusion, misunderstanding, and misuses of the balance sheet, and the distrust of statement figures (sometimes resulting in distrust of the accounting profession) are due to no little extent to the preparation of a single balance sheet used for all purposes.

2. Designation of a new purpose for the present balance sheet. The definition of the balance sheet as a "statement of the financial position of an enterprise at a specific date" is firmly established in the minds of many people who work with financial data. With this definition came the association of the purpose of this statement with the showing of the financial position of an enterprise. A new definition for the general balance sheet, the result of the yearly audit, is long overdue and is needed to eliminate misunderstandings, establish its limitations, and show its correct purpose. It would make clear that this purpose is *not* to reveal the financial position, but rather it is to show the *deferred charges* and the *unconsumed* or *unapportioned values* for future operations and their financing.[12] This statement would then be used as a certification of the verification and control of these values and not as an analytical tool. As a redefinition of the balance sheet might not be sufficient to completely disassociate the balance sheet from its former purposes, it might be well to change the name of the statement. A designation such as a "Statement of Deferred Charges and Their Financing" would not only make it clear that this is not a balance sheet, but would also explain what can be found in this statement.

3. Valuation of items. When the function of the deferred charges is realized, namely, to be applied, used, and consumed for the realization of revenue in order to generate a profit it becomes apparent that the valuation to be used on the new Statement of Deferred Charges and Their Financing must be current values. It is not the return of dollars that the investor is interested in, because a dollar without purchasing power is of no interest to him; he seeks, rather, the return of values. Also, it is not the dollar that is consumed for the realization of income, but values. Currency serves only the purpose of enabling us to measure values on a common basis. Any time this measure changes, adjustments have to be made; this is particularly true in business, where the incoming revenue is measured in terms of the new values. Expense and income must have a common denominator if any comparison is to be possible and if profit is to be determined correctly. As Ludwig von Mises says, "The difference between the value of the end

[10] A. C. Littleton, *op. cit.*, p. 15.

[11] E. B. Wilcox, *The Journal of Accountancy*, Vol. 69, p. 189.

[12] A. C. Littleton, *op. cit.*, p. 32, says, "In fact, if the rather legalistic term "assets" were to be dropped from accounting, some brief substitute term would undoubtedly be sought which would convey the idea that most assets are, in economic effect, deferred charges to future revenue."

attained and that of the means applied for its attainment is profit if it is positive and loss if it is negative."[13]

4. Change of audit emphasis to profit and loss. The present audit procedures place the major emphasis on the balance sheet, as is indicated by the definition of a general audit as a "balance sheet audit with test checks of operation." This detailed emphasis is difficult to understand in the light of the comparatively greater importance of the profit and loss statement. The profit and loss statement shows the performance of management, the profitability of the investment, and can serve as an analytical tool for all parties concerned. It is only right and just to ask that a larger emphasis be put upon this statement. Once this has been done, the major obstacle in connection with the valuation problem, the balance sheet, will be overcome by the mere fact that we have realized that profit is the difference between values received and values consumed and not between some arbitrary dollar amounts.

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[13] Ludwig von Mises, *Profit and Loss*, Consumer-Producers Economic Service, South-Holland, Ill., 1951, p. 27.

IDLE CAPACITY AS A LOSS—FACT OR FICTION

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IN A large part of the literature of cost accounting a loss due to idle capacity is recognized as a definite possibility. The idle capacity loss is considered to be the unutilized portion of fixed manufacturing overhead costs.

The objective of this article is to set forth the general view that there is no such thing as a loss due to idle capacity for purposes of income measurement. In order to illustrate this point of view the fixed or capacity costs of manufacturing will be classified as capacity costs related to fixed assets and capacity costs related to semi-variable costs. In each case the concept of an idle capacity loss will be shown to be inconsistent with the process of income measurement.

CAPACITY COSTS RELATED TO FIXED ASSETS

Among the fixed manufacturing costs related to buildings and equipment are such costs as depreciation, property taxes, and insurance. Idle capacity as a loss is usually associated with these costs by determining the percentage of capacity[1] utilized. For example, if capacity is 10,000 units and actual output is 6,000 units, capacity utilized would be 60 per cent. Unutilized capacity would then be 40 per cent. The capacity costs related to fixed assests could then be multiplied by the unutilized 40 per cent of capacity to determine the idle capacity loss.

A basic factor behind the measurement of the above idle capacity loss is the method of accounting for fixed asset costs. Depreciation is measured on a straight-line basis. Insurance and taxes on depreciable property are considered as costs of the period in which liability for payment is incurred. These procedures are entirely inappropriate in the area of overhead costs and income measurement. Depreciation, taxes, and insurance should be allocated to production on a unit-of-output amortization plan. This is the most logical procedure to follow if units of plant are thought of as bundles of services.[2]

Insurance and taxes on depreciable property are considered together with depreciation because all are a part of the cost of utilizing equipment. In addition the taxes and insurance are automatically incurred on the basis of a fixed asset expenditure decision and thus it seems quite logical that they should be amortized over the useful life (in terms of expected output) of the fixed asset acquisition.

The unit-of-output amortization plan converts depreciation, insurance, and taxes into variable costs and thus there can be no idle capacity costs related to these items. The variability of these costs precludes the possibility of idle capacity as a loss since idle capacity can only result when these costs are considered as fixed and applicable to a period rather than to production.

An excellent approximation to the unit-of-output amortization plan has been used in actual practice.[3] The method involves a

[1] A complete discussion of different measures of capacity will be presented later under "Some Objections Considered."

[2] William A. Paton and A. C. Littleton, *An Introduction to Corporate Accounting Standards*, American Accounting Association Monograph No. 3, 1940, p. 84.

[3] N.A.C.A. Research Study, "Practice in Applying Overhead and Calculating Normal Capacity" *N.A.C.A. Bulletin*, XIX, Sec. 3. (April 1, 1938) p. 930.

N.A.C.A. Research Study, "Accounting for Excess Labor Costs and Overhead Under Conditions of Increased Production," *N.A.C.A. Bulletin*, XXII, Sec. 3 (August 15, 1941) pp.1565–70.

measure of capacity based on an average of expected sales over a period of years. Under this method over-and-underabsorbed fixed overhead costs are treated as deferred balance sheet items. This method is often referred to as a form of normal overhead concept,[4] but in this paper it will be referred to as the "cycle overhead concept" in order to emphasize the deferred balance sheet treatment of over- and underabsorbed fixed overhead. In this case the cycle overhead concept will be applied only to depreciation, taxes, and insurance, while in the usual case the cycle overhead concept is applied to all fixed manufacturing overhead items.

The "cycle overhead concept" as an approximation to the unit-of-output amortization plan includes straight-line depreciation and insurance and taxes on depreciable property as capacity costs related to fixed assets. These costs are in effect converted into variable costs by means of the cycle concept which is based on an average of expected sales and the deferred balance sheet treatment of over- and underabsorbed fixed asset costs.

Capacity Costs Related to Semi-Variable Costs

Semi-variable costs include those cost inputs related to supervisory personnel, practically all the costs of service departments, and practically all the costs incurred by the plant superintendent's office and the manufacturing vice-president's office. The traditionally expressed treatment of these costs would be to segregate the fixed and variable portions thereof and then allocate the variable portion to actual output, the utilized fixed costs to actual output, and the unutilized fixed costs to an idle capacity loss account. This traditional treatment is considered erroneous.

The semi-variable costs are costs that come in "chunks." It is absolutely necessary to incur each entire "chunk" of cost in order to obtain any output within the range of outputs which can be serviced by each "chunk" of semi-variable costs. Each "chunk" is added when production reaches a certain level and it is absolutely necessary to all output possibilities starting from the point where the "chunk" is first added and ending at the point where it is necessary to add another "chunk." Since these semi-variable costs are absolutely necessary for production, they must all be considered costs of production no matter what output is within the range for which the "chunk costs" are absolutely necessary.

Since all the semi-variable costs are absolutely necessary for actual production, there can then be no loss due to idle capacity. If one were to disagree with this conclusion, he would be admitting that an absolutely necessary cost input could be considered as a loss or waste.

Some Objections Considered

It would seem that there are three possible objections to the previous arguments. One objection relates to the efficacy of the different measures of capacity which have been used for many years and which can bring forth idle capacity costs. Another objection relates to the retention of unnecessary personnel and the final objection relates to changes in average sales expectations or the useful lives of fixed assets.

Measures of Capacity

Five measures of capacity are ordinarily mentioned in the literature of cost accounting.[5] These measures can be described

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[4] R. Lee Brummet, *Overhead Costing*, Michigan Business Studies, Vol. XIII, No. 2, (Ann Arbor, Michigan: University of Michigan, 1957), p. 62.

[5] John G. Blocker and W. Keith Weltmer, *Cost Accounting*, 3rd Ed. (New York: McGraw-Hill Book Company, 1954), p. 313. Adolph Matz, Othel J. Curry, and George W. Frank, *Cost Accounting*, 2nd Ed. (Cincinnati: South-Western Publishing Company, 1957), pp. 532–4. Brummet, *op. cit.*, p. 62.

as follows:

a) Theoretical Capacity	The maximum utilization of facilities during regular working hours without reference to the human factor, i.e., normal operating interruptions.
b) Practical Capacity	Theoretical capacity less allowances for expected idle time and other expected operating interruptions, i.e., the physical output potential of facilities.
c) Normal Capacity	Average annual sales expectations.
d) Cycle Capacity	Average annual sales expectations.
e) Expected Capacity	Expected output for the year.

The difference between theoretical and practical capacity is the recognition of the human factor or the limitations of men and the creations of men (manufacturing facilities). Both theoretical and practical capacity are based on the productive expectations of men and machines employed by and for the factory while normal, cycle, and expected capacity are based on sales expectations of the firm. The difference between normal and cycle capacity relates to the treatment of over-and-underabsorbed fixed overhead costs. Over-and-underabsorbed fixed overhead are treated as gains and losses under normal capacity and as deferred balance sheet items under cycle capacity.

Idle capacity can exist as a loss under theoretical, practical, and normal capacity. This is true because actual output can be less than each of these capacity measures. With actual output at less than a measure of capacity, unutilized capacity springs forth as a measure of unutilized fixed costs which is the same thing as an idle capacity loss.

Idle capacity cannot exist under cycle or expected capacity. Under cycle capacity, unutilized fixed costs are treated as costs applicable to the future (deferred charges) or as a reduction of deferred credits arising when actual output exceeds average annual sales expectations. Under expected capacity there are no unutilized fixed costs since all fixed costs are allocated to actual output.

Actually none of the above capacity measures is appropriate for income measurement. Theoretical capacity is inappropriate because it does not recognize the limitations of men and the creations of men. Practical capacity is the outgrowth of comparing actual output with the physical output potential of facilities. Income measurement should not be based on the physical output potential of facilities. Income measurement should be based on the expected or useful life of facilities. Assets are acquired to be used during their useful lives and thus the costs of such assets should be amortized over their useful lives (expected output) not their physical lives (physical output potential). To argue for the practical capacity concept as useful in income measurement is to argue for the thoroughly unacceptable idea that fifty per cent of the depreciation on a salesman's automobile is a loss if the automobile is used and expected to be used four hours during a normal eight hour working day. The grafting of the practical capacity concept onto accounting measurements of income is probably nothing more than the outgrowth of the influence of engineers on early industrial accounting.

The comparison between actual output and the physical output potential of facilities is logical in its own right, but it must be remembered that this comparison is related primarily to engineering comparisons that are and always should be made in industrial plants. The comparison stated in the form of a question would be: How much more output can be produced with existing facilities? The answer to this question could provide very useful knowledge

for scheduling production and possible capital expenditure decisions.

The measurement of additional output possible with existing equipment is perhaps made best in terms of physical units of output. However, the measurement of "lost" or "unused" output potential in dollars could be useful for certain purposes. Management might be interested in a figure which tells how much total and unit costs could be removed from present output if expected output (comparable to useful life) could be increased to physical output potential (comparable to physical life).

The normal capacity concept is apparently the outgrowth of the practical capacity concept and the search for a cost-determining price and a measure of manufacturing efficiency. A long-run cost-determining price is obtained when unit costs are based on average expected use of facilities. Unit costs are not allowed to fluctuate on the basis of fixed cost absorption because fixed cost absorption has no effect on the value of merchandise.[6] A fair overall measure of the extent and direction of manufacturing efficiency can be obtained from a unit cost which varies only with shop efficiency (not fixed cost absorption).[7]

With an unvarying fixed cost per unit, the normal capacity concept produces over- and underabsorbed fixed costs. The under- and overabsorbed fixed costs are based on the difference between actual output and average expected output. These under- and overabsorbed fixed costs are considered as losses and gains solely because those who advocated the normal overhead concept were unable to divest themselves completely from an attachment to the practical capacity concept. Another possible reason why under- and overabsorbed fixed costs are considered as losses and gains is the refusal of the accounting profession to recognize that the averaging of fixed costs over expected output should be followed through with a deferred charge and deferred credit treatment of under- and overabsorbed fixed overhead.[8]

As it is generally promulgated today, the normal overhead concept is related to a combination of a long-run price-determining cost and the practical capacity concept which demands that underabsorbed fixed costs be treated as a loss. Since the practical capacity concept has already been shown to be inapplicable to income measurement, it is only necessary to state that what is good as a price indicator (and even as an efficiency indicator) is not necessarily appropriate for income measurement purposes.

The advocates of the normal capacity concept have failed to recognize the inapplicability of their approach to income measurement, and out of the inapplicability of normal capacity arose the direct costing controversy.[9] Fortunately, the early direct costers recognized the inapplicability of the normal overhead concept and its concomitant gains or losses due to changes in fixed overhead absorption. Unfortunately, however, the direct costers did not remove the inadequacies of normal overhead from accounting for income measurement. The direct costers only evaded the inadequacies of normal

[6] J. P. Jordon and Gould L. Harris, *Cost Accounting* (New York: The Ronald Press Co., 1920) p. 222. C.E. Knoeppel and Edgar E. Seybold, *Managing for Profit* (New York: McGraw-Hill Book Co., Inc., 1937) p. 176. L. W. Downie, "Normal Capacity and Its Uses," *N.A.C.A. Bulletin*, XXVI, Sec. 1. (September 1, 1944) p. 5.

[7] H. L. Gantt, "The Basis of Manufacturing Costs," *Industrial Management*, LIII (June, 1917), p. 369. G. Charter Harrison, "Cost Accounting in the New Industrial Day," *Industrial Management*, LVIII (December, 1919), p. 443.

[8] For some support of this view see Brummet, *op. cit.*, p. 82.

[9] To understand the relationship between the rise of direct costing and the normal overhead concept it is only necessary to remember the many references to over- and underabsorbed fixed overhead which give rise to an unsympathetic relationship between sales and net income.

overhead by eliminating the fixed overhead costs from production costs.

The defenders of traditional accounting for income measurement did not even recognize the inadequacies of the normal overhead concept; all they did was to argue that fixed costs are costs of production via a practical capacity concept,[10] thus eliminating the embarrassing overabsorbed overhead[11] or a cycle concept.[12] The cycle concept eliminated the gain and loss treatment of over- and underabsorbed fixed overhead and thus eliminated an unsympathetic relationship between sales and net income which is the keystone of the direct costing argument.

The cycle capacity concept[13] is primarily the outgrowth of adopting a business cycle rather than a year as the basis for measuring periodic income. Fixed overhead is averaged over the years of the cycle and thus the cycle concept does not yield a gain or loss due to under or overutilized facilities. The lack of gains or losses due to volume changes is quite consistent with the approach to overhead accounting recommended in this paper, but the cycle capacity concept obtains the favorable feature of no gains and losses at too great a cost. The error in the cycle concept is that it aims at leveling out the results of a year or series of years so as to make the results of individual years uniform. The advocates of the cycle concept forget that the results of each year should be made to stand out prominently.

The cycle concept ignores the fact that semi-variable cost inputs, "chunk costs", are entirely applicable to whatever output they are used to produce. Thus considering the "chunk costs" of production, the economic fact of varying unit costs would be averaged into oblivion by the cycle concept. If one is interested in a cycle type of concept, let him add together the short period elements of the cycle in order to obscure the ripples in economic activity for whatever purpose he has in mind. For accounting purposes of income measurement the economic facts of life cannot be ignored. The task is simply one of determining a unit cost figure on the basis of the output for a period and the costs necessary to produce such an output, including all the "chunk costs". These are the data concerning a particular operating period which do not obscure or normalize out of existence the economic individuality of different operating periods.

The use of expected capacity would ordinarily not be appropriate for income measurement purposes. This is true since depreciation, insurance, and taxes are usually considered fixed and applicable to a period rather than to production under a unit-of-output amortization plan. Expected capacity would be acceptable for income measurement purposes only if it included all variable and semi-variable costs and the fixed asset costs appropriate to the expected output.

A more complete analysis of overhead costs and income measurement will be presented in another paper.[14] The only reason for considering capacity concepts and income measurement is to remove apparent obstacles to the acceptance of the general view that idle capacity as a loss does not exist. These obstacles are the previously

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[10] Charles F. Schlatter, "Fixed Expense" The Accounting Review, XX (April, 1945), pp. 156–63.

[11] Overabsorbed fixed overhead is embarrassing because it is treated as a gain which is offset by an inflated unit cost figure.

[12] Joseph Mauriello, "Convertibility of Direct and Conventional Costing," *N.A.C.A. Bulletin*, XXXV, Sec. 1. (March, 1954), p. 893.

[13] In this case the cycle capacity concept is considered as a straightforward income measurement device. It is not considered (as it was earlier in this paper) as an approximation to the unit-of-output amortization plan. The cycle capacity concept as an approximation to the unit of output amortization plan refers only to the fixed costs related to fixed assets. As it is now being considered, the cycle capacity concept refers to all fixed manufacturing costs including the fixed portion of semi-variable or "chunk costs".

[14] "Overhead Costs and Income Measurement," an article to be included in a later issue of The Accounting Review.

considered capacity concepts. The calculations of theoretical and practical capacity are not appropriate for income measurement because they are based on a form of "physical life" (physical output potential) not "useful life" (sales expectations). The calculations of normal capacity are not appropriate for income measurement because they are based primarily on a price determining cost which is not necessarily appropriate for income measurement.

The calculations of cycle capacity conform to the idea that idle capacity as a loss does not exist, but they are inappropriate for income measurement because they average the economic individuality of different operating periods. The calculations of expected capacity also conform to the idea that idle capacity as a loss does not exist, but they are inappropriate for income measurement because they do not apply unit-of-output amortization to the fixed costs related to fixed assets.

Retention of Unnecessary Personnel

On occasion a case may arise where supervisory personnel are retained on the payroll even though they are not absolutely necessary productive factors. Such cases arise in times of recession or strikes where the salaries paid to excess supervisory personnel would be less than the costs of acquiring and training new supervisors when business conditions improved or a strike is over. However, the costs of retaining these supervisors could not be considered as an idle capacity loss or any other type of loss.

If supervisory personnel are retained, not for present use but for expected future use, the costs of present retention should be allocated against the expected future use. Thus the costs of retention are not costs of production or losses in the period in which they are paid; they are costs of production of those periods in which benefit is expected out of the present retention of supervisory personnel. To argue that costs of retaining unnecessary supervisory personnel for the above reasons is an idle capacity loss or any other form of loss is to argue that a sound investment decision can simultaneously be considered a loss.

Changes in Useful Life or Average Sales Expectations

The amortization of fixed costs related to fixed assets should be on the basis of useful life in terms of units of output. Average sales expectations under the cycle overhead concept is an approximation to useful life in terms of units of output. If the useful life expectancy turns out to be correct, all the fixed asset costs will be allocated to the units produced. If the useful life expectancy is incorrect, all that is usually necessary is a change in fixed asset amortization rates as is ordinarily recommended in financial accounting. The revised rates usually relate to items which could and should be built into estimates of useful life and sales expectations.

In the extreme case where useful life or sales expectations are changed on account of factors which couldn't possibly be foreseen and built into amortization rates, arguments can be made for recognizing losses and even gains. Losses can occur on the basis of unexpected technological change, market deterioration, and even strikes. Such a loss would be recognized at the time the change in useful life or sales expectations occurred. An argument can be made for recognition of gains when expected life is increased due to material errors in forecasting technological progress, material increases in the market potential of present products, or development of new products which can be produced with present facilities.

Between the extreme cases of change in useful life or sales expectations where an argument can be made for recognizing a

gain or a loss, and the normal cases of changes in useful life where amortization rates are revised, there is a grey area where judgment must be exercised. Judgment comes into play when it is necessary to determine whether a particular case is an extreme wherein a gain or loss could be recognized, or the more usual case involving a revision in amortization rates. Thus the only possible case that can be made for recognition of a loss which could be called an idle capacity loss (especially in case of strikes) relates to the extreme cases of changes in the useful life or sales expectations. This is the only exception to the previously stated general view that idle capacity as a loss does not exist.

Conclusions

The portion of fixed manufacturing overhead costs related to fixed assets should be allocated to production under a unit-of-output amortization plan (approximated by the cycle overhead concept) which cannot yield an idle capacity loss. The portion of fixed manufacturing overhead costs related to semi-variable cost inputs should be allocated to whatever output is produced within the range for which these costs are absolutely necessary; therefore they cannot yield an idle capacity loss on the basis of changes in production volume. Since there are no other categories of fixed manufacturing overhead costs and variable overhead costs are allocated to actual output, idle capacity as a loss (for income measurement purposes) does not really exist. The only possible exception to this conclusion relates to extreme changes in useful life or sales expectations. Losses incurred on the basis of such extreme changes might be called idle capacity losses.

ALLOWANCE FOR SETUP TIME UNDER STANDARD COSTS

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MANUFACTURING plants using a standard cost system often find that the variations from the standard do not account for all the differences in unit costs. Standards based upon historical costs may be established, but the unit labor cost will indicate great variations for small as compared to large runs. It is thus necessary to find some way of segregating the setup time from the machining time.

Under present day cost procedures, standard variations are adequately accounted for, so that steps may be taken to improve the company's manufacturing efficiency. However, when the objective of a cost system becomes not only a means of calling the management's attention to variations from standards set for material, labor, and indirect expenses, but also a tool for *pricing* special repair parts, some means must be found to interpret and evaluate the costs.

This paper explains the development of formula, based upon historical costs, for computing the setup time. By accounting for setup time in the costing of various parts, a more realistic price for the product may be established.

In the evolution of the formula, a basic assumption is made that unit machining time for a part, excluding setup time, remains constant; and that the variations are explained by divisions of the setup time for smaller and for larger quantities of parts manufactured.

In order to develop the relationship of various factors, the following designations are made: unit machining time, with unit setup time included, is assumed to be T; the quantity manufactured will be called Q; and the setup time alone will be represented by S.

The relationship between unit time, total time, and quantity may be shown as follows:

Quantity	Unit Time
800 (Symbol: $Q1$)	$T1=\dfrac{\text{Total Time}}{Q1}$
1,000 (Symbol: $Q2$)	$T2=\dfrac{\text{Total Time}}{Q2}$

With the assumption of equal setup time (S) for both operations, and equal unit machining times for operators with the same skill working on identical machines, unit machining time exclusive of setup time would be:

Unit machining time less unit setup time

$$\text{for } Q1 \text{ quantity} = T1 - \frac{S}{Q1} = M$$

Unit machining time less unit setup time

$$\text{for } Q2 \text{ quantity} = T2 - \frac{S}{Q2} = M$$

It should be noted that in the above representation, unit machining times for $Q1$ and $Q2$ quantities have been designated as M. The symbol M denotes only the unit machining time after unit setup time has been excluded. Since unit machining time (M) is considered the same for operators of equal efficiency, the following equation is

obtained:

$$T1-\frac{S}{Q1}=T2-\frac{S}{Q2}$$

$$T1-T2=\frac{S}{Q1}-\frac{S}{Q2}=S\left(\frac{1}{Q1}-\frac{1}{Q2}\right)$$

$$=S\left(\frac{Q2-Q1}{Q1\times Q2}\right)$$

Solving for S:

$$S=\frac{(T1-T2)(Q1\times Q2)}{Q2-Q1}$$

The setup time formula will now be applied to two actual operations. The following two tables show the direct labor hours required to machine identical parts:

DIRECT LABOR

Quantity: 800 ($Q1$)
Part No. 6811

Operations	*Total Time (hrs.)*	*Unit Time (hrs.)*
Shape	240	.30 ($T1$)
Mill	320	.40 ($T1$)
Total	560	.70

TABLE I

DIRECT LABOR

Quantity: 1,000 ($Q2$)
Part No.: 6811

Operations	*Total Time (hrs.)*	*Unit Time (hrs.)*
Shape	298	.298 ($T2$)
Mill	395	.395 ($T2$)
Total	693	.693

TABLE II

The formula will now be applied to shaping and milling operations in order to obtain the setup time for the part manufactured:

Computation of setup time for shaping:

$Q1=800$ $\qquad$ $Q2=1,000$

$T1=.30$ $\qquad$ $T2=.298$

Substituting these figures in the formula:

$$S=\frac{(T1-T2)(Q1\times Q2)}{Q2-Q1}$$

$$S1=\frac{(.30-.298)(800\times 1,000)}{1,000-800}=8 \text{ hours.}$$

$$S2=\frac{(.40-.395)(800\times 1,000)}{1,000-800}=20 \text{ hours.}$$

The complete setup time for the part would then be 28 hours.

Having calculated the setup time, the unit machining time for each piece can now be figured, as follows:

Unit shaping time on 800 pieces

$$=.30-\frac{8}{800}=.29 \text{ hours.}$$

The unit shaping time for the 1,000 pieces would be the same:

$$.298-\frac{8}{1,000}=.29 \text{ hours.}$$

The unit milling time for the 800 pieces would be computed in the same manner:

$$.40-\frac{20}{800}=.375 \text{ hours.}$$

For the 1,000 pieces:

$$.395-\frac{20}{1,000}=.375 \text{ hours.}$$

In the examples given, computations were based upon figures from two runs. Since it is possible that there may be errors in the reporting of labor and variations in the efficiency of the operators, the calculations should be extended to more runs, eliminating extreme values by selecting perhaps the median setup and machining time.

In Table III, the figures computed for

COMPUTATION OF STANDARDS

Part No. 6811
Part Name: Guide Rail
Material: Cold Rolled Steel AISE 1018
Weight: 1 lb. @ $.20

Labor

Shaping				
Machining	.29 hr.	@	$2.00 per hr.	= $ .58
Setup	8.00 hrs.	@	2.50 per hr.	= 20.00
Milling				
Machining	.375 hr.	@	2.00 per hr.	= $ .75
Setup	20.00 hrs.	@	2.00 per hr.	= 40.00

Machining: .29 hours + .375 hours = .665 hours.
Machining Cost: $.58 + $.75 = $1.33
Setup: 8 hours + 20 hours = 28 hours $60.00 (Setup Cost)

$\frac{}{N}$ (Quantity Manufactured)

Variable Expense: $.20

TABLE III

machining and setup time have been used in the calculation of standards for Part No. 6811. It is assumed in this discussion that only two machining operations are necessary, that the wage rate for machining is $2.00 per hour, and that the setup rates for shaping and milling are $2.50 and $2.00 per hour respectively.

Shaping unit time (.29 hours) and milling unit time (.375 hours) multiplied by the labor rate of $2.00 would result in a standard labor cost of $1.33, based upon .29 hours added to .375 hours, or a total of .665 hours.

The standard setup time for the part would be 8 hours for milling added to 20 hours for shaping, or a total of 28 hours. The setup time for one part is then found to be 28 hours, under assumptions made in the development of the formula. It is of course very improbable that a run of one piece would be machined at the resulting high cost. For N pieces manufactured, the standard setup cost for one unit would be $\$60/N$.

Material at standard is assumed to be one pound of cold rolled steel at a cost of $.20 per pound, and indirect expenses are figured at $.20 per hour. The Standard Cost Card would be shown thus:

STANDARD COST CARD

Material: 1 lb.	$ .20
Labor—Machining: .665 hr.	1.33
Labor—Setup: 28 hrs.	60.00
	$\frac{}{N}$
Indirect Expenses per hr.	.20

TABLE IV

Since the Standard Cost Card is based upon one unit, N would be equal to 1; for larger quantities, $60 would be divided by the quantities manufactured.

With the cost at standard for one unit, as in Table IV, computation will next be made for the standard cost of 800 units:

Material:	800 × $.20 =		$ 160
Labor:			
Machining:	800 × .665 = 532 hrs.	@ $2.00	1,064
Setup:	28 hrs.		60
Total	560 hrs.		
Indirect Expense: 560 × $.20			112
			$1,396

The standard unit cost for 800 pieces would then be

$$\frac{\$1,396}{800} = \$1.745.$$

The unit cost for one unit manufactured, as per Table IV, would be:

Material	$ .20
Labor	1.33
Setup	60.00
Indirect Expense (28.665 hrs. ×$.20)	5.732
Total Unit Cost	$67.262

The variations in unit cost of $67.262 for one unit manufactured, and $1.745 for 800 units processed indicate conclusively the importance of allowance for setup time in the computation of standards.

This formula, developed to establish standard costs based on various quantities of production, gives the accountant a most useful tool in analyzing costs.

A FALLACY IN ACCOUNTING FOR SPOILED GOODS

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SPOILED goods arise as a result of imperfections in manufacturing processes. The condition of the goods is such that it would not be economically feasible to correct the imperfections. As a consequence, the goods are sold as seconds at a loss.

Either of two methods may be used in accounting for the cost of spoiled goods. The correct choice of method depends upon the circumstance under which the loss occurred. A loss due to spoilage may be charged to the job or production order on which the loss occurred or it may be absorbed indirectly by all jobs through charging such loss to manufacturing overhead control. For the sake of brevity, a succinct explanation will suffice for the conditions under which either of these two methods may apply. If spoilage loss is not normal or a loss can be easily traced to a job which may be special in character, the loss should be charged to the job on which the loss occurred. If spoilage is normal because of the nature of the manufacturing process but irregular in amount from job to job, the loss arising from spoiled goods should be absorbed by all jobs by means of a predetermined manufacturing overhead rate.

An exception may be taken to the treatment found in cost accounting publications whereby spoilage loss is absorbed indirectly by all jobs through charging such loss to manufacturing overhead. This method is the second one previously mentioned. No exception can be taken to the explanation in accounting publications of the first method mentioned above, a justifiable and logical method in application.

The simple problem that follows will illustrate the fallacy in the second method above as presented in cost publications and an accounting technique will be given to correct this fallacious application.

The Lehigh Precision Tool Company contracted to manufacture 1,000 impact tools and incurred the following costs.

Materials	$2,000
Labor	4,000
Manufacturing overhead (rate, 180% of direct labor cost)	7,200

Upon completion of this job order, an inspection revealed that forty tools were spoiled in process but could be sold as seconds for $1.50 each or a total of $60. The customer agreed to call the order a completed one at 960 tools. Shown below are the entries found in accounting publications wherein the spoilage cost is treated as manufacturing overhead and included in computing the predetermined manufacturing overhead rate.

1. Material in process	2,000	
Labor in process	4,000	
Overhead in process	7,000	
Stores		2,000
Payroll		4,000
Applied manufacturing overhead		7,000
2. Spoiled goods	60	
Manufacturing overhead (Loss on spoiled goods)	468	
Material in process		80
Labor in Process		160
Overhead in process (at 180% of $160)		288
3. Finished goods	12,672	
Material in process		1,920
Labor in process		3,840
Overhead in process		6,912

Where spoilage loss is handled as a manufacturing overhead cost, it must be assumed that the predetermined overhead rate includes an amount of direct spoilage loss for material and labor. A predetermined overhead rate is computed system-

atically and carefully by estimating all overhead costs for a specified production period through the medium of budgeting procedures. The budget list would include an estimate of all actual manufacturing costs to be incurred, such as indirect labor, power, fuel, insurance, taxes, indirect material, depreciation, repairs, maintenance, direct material and labor losses in spoiled goods, etc. These manufacturing costs are actual costs which require a disbursement of funds, past, present, or future.

On the basis of the foregoing illustration, computed loss of $468 on spoiled goods is erroneous, inasmuch as only $180 of the $468 is an actual loss which requires a disbursement of funds, past, present, or future. The $180 is represented in direct material and direct labor losses ($80+$160 less $60). Of course, there is also an element of overhead loss since the manufacturing process in reality must absorb a part of each actual overhead cost. However, this element of overhead loss is found in all the actual overhead costs recorded and charged to manufacturing overhead as incurred. By charging overhead for an amount in excess of $180, costs are recorded twice which require disbursements but once. Manufacturing overhead cannot be charged for costs that do not exist. Manufacturing overhead control cannot be charged for $288 ($468–$180) with a designation of "applied manufacturing overhead" for the subsidiary account. Who has or would receive this $288? It has never been vouchered for payment. In fact, it cannot be vouchered for payment. An adjusting entry for $288 cannot be made for an accrual, for a prepaid item, for depreciation, etc. If it is not a duplicated or inflated charge, what is it?

It may be argued that the $288 is an estimate of an overhead loss in spoiled goods. This argument may be true, but the charge is not plausible in accounting treatment since the $288 would be found in actual overhead costs which are or will be recorded. A $288 overhead charge for the loss perhaps can be supported by crediting the many overhead costs in an amount to total $288. But the resultant effect would create a void since the same account, manufacturing overhead control, would be charged and credited for an identical amount. It is obvious, too, that such accounting technique would be trifling, time-consuming, and impractical.

To correct this loss-on-spoiled-goods fallacy, the second journal entry for the above illustration should read as follows:

Spoiled goods	60	
Manufacturing overhead (Loss on spoiled goods)	180	
Applied manufacturing overhead	288	
Material in process		80
Labor in process		160
Overhead in process		288

The debit of $288 to Applied manufacturing overhead in effect is a reversing entry for the original charge to the Overhead in process account for forty spoiled units at an overhead rate of $7.20 a unit.

It is apparent that the treatment of spoiled goods loss found in accounting publications inflates actual and applied overhead in the same amount, and that an overhead variance is not affected since the difference between actual and applied overhead costs remains the same. The crux of the matter is that in addition to recording a cost that does not exist, the percentage of overhead cost to total production cost is in error. Moreover, predetermined overhead costs cannot coincide with actual overhead costs when inflated by nonexistent and erroneous charges.

THE DIVIDED HOUSE OF CONSOLIDATIONS

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INTEREST in consolidations has increased in recent years by the advent of *Survey of Consolidated Financial Statement Practices*, published by the American Institute of Certified Public Accountants in 1956, hereinafter called the "survey," and now, Accounting Research Bulletin 51 issued in 1959.

Study of the procedures employed in consolidating accounts and in the presentation of consolidated statements indicates a wide diversity. In many areas of accounting a variety of approaches is necessary because of the different circumstances that surround individual business entities. Flexibility in approach adds to the accountant's effort a touch of realism that would be stifled if a rigid pattern were to be followed. Accounting has not been without its critics for reason of this flexibility. Where diversity in practice is not based upon sound grounds, criticism is valid. The thesis advanced here is that some of the alternative procedures invite discussion because of what appears to be lack of a firm footing.

The argument that follows centers on a seeming lack of objective, or "point of view," in consolidations. The problem of whether to consolidate or not is assumed to be solved. This divorces us from discussing the amount of control exercised, the degree of integration of the subsidiary with the parent, or whether or not foreign subsidiaries should be consolidated. We assume the advisability to consolidate is present.

Having dispensed with these matters, this important question arises: "From whose point of view are we preparing the consolidated statements?" A combined point of view might be attempted, in which is maintained some recognition for the underlying subsidiaries and the minority interests therein. This is rarely done because the underlying subsidiaries' separate statements seldom accompany the consolidated statement. The majority interest point of view might be adopted, giving some acknowledgment to the minority and careful concern for the controlling interest. This is the usual presentation. This apparent agreement on viewpoint is deceptive because the procedures used to develop the statements denote possible contradictions to a consistent approach.

Point of View in Consolidations

The basic philosophy behind amalgamating several companies in a single, consolidated statement is to depict a fictional entity that has economic, but not legal, reality. This economic reality is simply the summation of the net assets of the different companies in a consolidated balance sheet or the product of these assets that takes form in the consolidated income statement. Commonly, it is stated that the workings of controlled subsidiaries can be viewed by the parent company as those of a division or branch. Such a viewpoint betokens "oneness" since a division or a branch are both legally and economically part of a single company. Since there may be several legal entities in a consolidation, the legal separateness of the different companies is discarded to secure an economic oneness. In this sense, "oneness" connotes that the parent company point of view dominates in all the activities of intercorporate relationship.

The widespread acceptance of a basic

philosophy of accounting that results in a single, unified entity called the "consolidated company" implies that the procedures required to give reality to such a company are fairly standard. That this should be so, we emphasize the fact that accounting for divisions or branches poses little theoretical difficulty. That this is not so, we shall attempt to demonstrate in the remainder of this paper.

The ideal way to show that consolidations are made with procedures that deny the oneness mentioned above would be to have access to all the consolidating papers and to discuss the procedures used in consolidations with particular companies. Alternatively, another way to pursue the same objective would be to find out what companies state they do, and try to discover from these procedures whether the philosophy of oneness in consolidations has been abridged. This is the approach taken here.

We must, therefore, find out what procedures companies follow in given situations involving intercorporate relationships, compare such procedures with the presumed guiding point of view, and assess whether or not this point of view has been maintained. Certain intercorporate relationships are analyzed in detail to distinguish if the single enterprise philosophy is followed. Such items as intercorporate profits in inventory, goodwill or surplus in eliminating the investment account, income tax allocation, and long term debt are examined. These items are related to the minority and majority interests to uncover the philosophy or point of view in consolidation. The minority interest bears a considerable weight of the following discussion. Therefore, we shall expand on the nature of the minority interest, its classification, and the determination of amounts assigned to the minority in the process of consolidation.

Minority Interest

A minority interest represents stock ownership in one or more subsidiaries of an affiliated group of companies. Their equity stems from holding shares in the several companies in the group. A minority stockholder must look to a particular company for a determination of his equity, the source of dividend possibilities and payments, and the basis for claim if liquidation ensues. Thus, the minority must gauge its financial status from given companies, not the parent or the consolidated group.

Some items in consolidation that affect affiliated companies, for example intercompany profits in inventory, are given special consideration in consolidating procedure because they appear to the minority and majority in different ways. As stated earlier, the legal concept of a "consolidated" company is nonexistent and the idea of an economic group takes precedence. This means that we are under no obligation to state exactly the minority's legal equity in a consolidation. Since the minority holds shares in one or more of the underlying subsidiaries, we cannot gainsay their existence. We must not, however, pay undue attention to this group or we upset the notion of a single, economic entity. In short, we become guilty of switching back and forth from the majority to the minority in treating certain items (intercompany profit in inventory, goodwill or surplus, income tax allocation, and long term debt) while steadfastly claiming that the statements are being prepared from the viewpoint of a unified enterprise.

The classification of the minority interest in the financial statements may shed some light on the role of the majority. Actually, we will infer from the position given to the minority, and the procedures used in determining the amount, the majority's point of view in consolidation.

The minority interest is found in three

different positions in published consolidated statements of financial position:

1. As a liability.
2. As a quasi-liability, between the liabilities and the stockholders' equity.
3. As a part of stockholders' equity.

If the minority interest is classified as a liability, this would seemingly place the group in the creditor class. The American Institute of Certified Public Accountants found this classification in 23 out of 85 companies displaying minority interests.[1] On what grounds can the minority be classified as a liability? The interest is not a creditor interest in any sense; they are and will remain stockholders regardless of consolidation. Using such a classification would imply that exactness would be necessary in defining the amount owed this creditor group. This argument should be borne in mind because of the procedures, discussed in subsequent paragraphs, used in assigning the minority interest specific amounts of intercompany items and other amounts that arise in consolidating procedures.

The placing of the minority interest between the liabilities and the stockholders' equity is similar to sending it to limbo. In reality, this classification between the creditors' equity and the stockholders' equity equates to no classification whatsoever, except as an equity interest. The care afforded in stating the amount of the minority interest seems to be wasted by reason of this indifferent attitude toward its classification. Again, the particularization of the amount of the minority interest in given items that arise in consolidating accounts would seem to be unnecessary if the final amount is compromised in classification. This practice was even more popular than showing the minority as a liability, 56 out of 85 companies surveyed by the Institute handled the minority this way.[2]

The classification of the minority interest as part of the stockholders' equity is the least popular approach; it was used by only three companies out of 85.[3] The companies following this practice seem to accept the minority as part of the stockholder interest in the assumed, fictional entity, the consolidated company. The minority interest is thus a stockholders' equity interest. The determination of the amount of the minority interest, using this classification, will be discussed at length later.

The recent bulletin, Accounting Research Bulletin 51, does not take a stand with regard to the location of the minority interest in the statement of financial position. The opinion here is that conformity in this matter would allow not only uniformity in presentation but also would bring clarification to an item that has a single meaning despite the acceptability of three alternative presentations.

The number of companies following a given procedure does not necessarily indicate correct practice. The American Institute's survey helps, however, in attempting to discern point of view. The diversity of classification is of interest because it tends to confirm the suspicion that even when a particular point of view is held, some of the procedures in consolidation may contradict that viewpoint.

Intercompany Profits in Inventory

If the consolidated statement of financial position includes inventories that arose from sale of a subsidiary to the parent, the more common practice from the survey appears to be elimination of the entire profit on the sale, regardless of the fractional share of the subsidiary's stock held by the parent. Such a procedure conforms to the

[1] *A Survey of Consolidated Financial Statement Practices*, 1956, p. 18.
[2] *Loc. cit.*, p. 18.
[3] *Loc. cit.*

unified enterprise, or majority-interest viewpoint. The amount of the minority interest in such instances was probably computed by applying the minority's percentage interest to the subsidiary's ending retained earnings without regard for intercompany items. This procedure automatically gives the minority its share of any profits in inventory and allows the weight of eliminating the entire profit on intercompany inventories to be a reduction in the majority interest. Consequently, the majority's interest will be understated because it has borne the full elimination stemming from the entity approach, whereas the minority will be stated correctly from the selling company view but overstated from a consolidated viewpoint.

Some of the companies surveyed by the Institute eliminated only the percentage interest of the parent in intercompany profit in inventory that arose from sales of a subsidiary to the parent. To eliminate only the parent company's percentage interest states the assets at a greater amount than in the instance of complete elimination. This addition to the assets is counterbalanced by the minority interest share of the profit in the inventory. Thus, the inventory from the standpoint of a consolidated enterprise is overstated because of deference to the minority interest. The minority group will be stated correctly from the view of the individual selling company but overstated from the consolidated viewpoint. From the consolidated standpoint, the minority should be brought along as a special class of stockholder in a larger business entity from whose standpoint no profit has been made.

If intercompany profits arose from the sale of goods from the parent to subsidiaries having a minority interest, the more common practice seems to be elimination of the entire profit. Some companies in the Institute's survey, however, eliminated only the percentage interest that the parent held in the subsidiary buying the goods. This latter practice, eliminating intercompany profits only to the extent of the parent's interest in the subsidiary, pays service to the minority in the subsidiary that purchased the goods. Here, again, the viewpoint guiding the consolidating procedure appears confused—concern for the minority interest while professing that the underlying assumption of consolidated statements is to represent the financial results of a unified enterprise.

These procedures are related to the alternative practices of classifying the minority interest in the statement of financial position. It will be recalled, the minority can be classified as a liability, quasi-liability, or stockholder equity interest. Acknowledging the profit from intercompany inventory that belongs to the minority interest perhaps indicates a desire to state the assets at a greater amount (the addition for the minority interest) to offset a liability or a quasi-liability in the form of the minority interest. But is the minority interest a liability or quasi-liability? The belief here is that the minority is neither of these and the conventional accounting interest in stating liabilities correctly is being followed but for the wrong reason. If the minority is shown in the stockholders' equity section with no identification of its share of retained earnings, and if all the intercompany profits in inventory are eliminated, then one does not have the impossible task of reconciling the position of the minority in one part of the statement of financial position with procedures that determine the amount of the different interests. The rejoinder might be: "Who cares?" The contention expressed here is that overstatement, understatement, in short, misstatement, cannot be accepted as correct procedure in handling inventory, or any item, in consolidations that should be prepared as if the reporting company is a unified economic entity.

Accounting Research Bulletin 51 approves of charging the majority for all or splitting the intercompany profit between the majority and minority. This approval will permit procedures such as those described to be followed. It seems that the purpose of the consolidated statement is contravened if intercompany profits are split between majority and minority, for the avowed purpose is to present a "single company with one or more branches or divisions."

Goodwill or Surplus in Eliminating the Investment Account

Occasionally goodwill or surplus (an excess debit or credit) arises in the consolidation because the parent has paid more or less than the underlying book value for the subsidiary's net assets. These amounts arise out of the consolidating technique and do not appear on any particular company's books. Still, some companies in the survey allocated a portion of goodwill or surplus from consolidation to the minority. This signifies a possible write up, or write down, of certain assets on the books of the subsidiary company, or at least such a write up or write down in the consolidating working papers. At base, this appears as an attempt to give the minority its fair share of these amounts. Such excess debits (goodwill) or credits (surplus) stem from the majority's purchase price being related to what is purchased, the stock and retained earnings of the subsidiary.

Why should the minority interest be increased or decreased one whit because the majority interest paid more or less than book value for the underlying net assets of a subsidiary? From whose viewpoint are the consolidated statements being prepared? From the minority's standpoint, such goodwill or surplus arose from the consolidating procedure and these amounts are nonexistent on the unaltered records of the subsidiary. Moonitz argued some time ago that if the whole goodwill or surplus of the company purchased was to be shown, the entity's total assets would change to show the goodwill or surplus for both the minority and the majority,[4] but this would be different from the apparent practice of taking part of the goodwill or surplus that is supported by the majority's purchase price. From the majority's viewpoint, the amounts arose because of its purchase and any excess values (goodwill or surplus) should be assigned to the proper consolidated accounts and looked upon as relating to the entity—the single enterprise.

Income Tax Allocation

In a real sense, the filing of a consolidated income tax return represents the group as an economic entity. The affiliated companies are viewed as a group and the tax is paid on the combined income, individual company profits and losses being offset.

In the survey referred to above, one company charged each subsidiary with a tax of 52 per cent of its net taxable income. From the consolidated entity's viewpoint this is an incongruous action—the income is determined for the consolidated group, yet the individual companies are charged with a tax of 52 per cent, regardless of the fact that the individual company's share of the tax would be relatively less on a consolidated basis or otherwise the consolidated tax return would not be used. No matter how the minority is viewed, this would tend to understate the minority interest because the theoretical tax, that charged against the companies, is greater than the actual tax. A similar technique is used when the parent charges the affiliated companies a tax on the prorata share of taxable income produced, without considering companies with losses. If minorities

[4] Moonitz, M., *The Entity Theory of Consolidated Statements*, American Accounting Association, 1944, pp. 65–67.

are present in these companies, this procedure denies any benefit to the minority in the loss company and improves the position of the minority and majority in the profit-making companies, with the greater share to the majority. This is in contrast to the predominant method of eliminating all the profit on intercompany inventories, in which the probability is that the majority interest was reduced while allowing the minority to retain its share of any profits arising from intercompany inventory. Comparing the procedures used for intercompany profits with that used for income tax, the majority interest is improved at the expense of the minority in some procedures followed in consolidating tax returns, whereas the minority interest is improved at the expense of the majority in certain procedures used in handling intercompany profits in inventories.

It should be clear that the affiliated companies can agree on splitting the actual tax any way they wish. The point to be noted, however, is that the entity or combined viewpoint is adopted in the calculation of the tax for the group as a whole. In the instances where the tax liability assigned to a given company is as much as would have been paid without consolidation, there arises a curious admixture of viewpoints, the entity in the calculation of the liability, the individual company in the distribution of the debt. It would appear appropriate that the tax be looked upon as a distribution of income by the consolidated group as a whole, thereby reducing the net income after taxes to be transferred to consolidated retained earnings. The distribution of the liability and the variety of different ways that the subsidiaries bear their portion of the tax do not appear as problems if the statements are prepared from the group standpoint. The attempt to locate specific amounts of the tax liability among the subsidiaries apparently stems from an interest in particularizing the minority's share in the consolidated statement of financial position. The tax will and must be distributed; but this is not important if the minority is looked upon as a stockholder equity group and their share is shown as so much stock with no attempt to define their share in retained earnings.

Long Term Debt

Careful attention to the minority interest leads to some rather unwieldy procedures in handling intercompany debt in the process of consolidation. Whereas the above comments were based on what would be called "practice", theorists, too, advocate equal concern for the minority. Some writers advance the proposition that intercompany debt should be construed as retired debt at the time of consolidation. If discount and/or premium on these bonds "retired" is present at consolidation, these accounts must be disposed of in the consolidating process. To allow them to remain while the bond account with which they are associated is reduced drastically or eliminated would place the consolidated position statement in the anomalous state of having discount and/or premium on bonds without any underlying bonds payable to support them. Fractional shares of any gain or loss from the "retirement" of the bonds and the write off of bond premium or bond discount are associated with the minority's interest (if one exists) as well as the majority.[5] If one's viewpoint is that the minority's interest must be carefully calculated, then these procedures might follow. If, on the other hand, the viewpoint adopted is that the consolidated statement is the entity's statement, such a careful treatment is unnecessary. Thus, the assumption of intercompany bonds be-

[5] Karrenbrock, W. E., and Simons, H., *Advanced Accounting*, Comprehensive Volume, Second Edition, Southwestern Publishing Company, pp. 433–438.

ing retired can be made, but any so-called "gain or loss on bond retirement" would be assigned exclusively to consolidated retained earnings.

Suggested Treatment

Viewing the minority interest as a liability or as a quasi-liability impels attention to assuring that all items affecting, or imputed, to the minority interest be assigned, accordingly, to determine the amount of the minority interest. If the minority interest is viewed as a part of stockholder ownership, then less concern need be given to shares of profit or loss associated with the minority, and the minority can be presented in the net worth section with less specification of the dollar amount. The division in the house of consolidations is healed by accepting the minority back to the stockholders' fold and implementing this acceptance with appropriate procedures in consolidation.

The presentation accorded the minority interest in the Sinclair Oil Corporation report is a good example:[6]

Stockholders' Equity

	1957	*1956*
Minority Stockholders of Venezuelean Petroleum Company	$—	$—
Sinclair Oil Corporation Stockholders:		
Common Stock Etc.	—	—

Other similar presentations can be found in the Crown Zellerbach report (1957) and the Standard Oil Company of Indiana (1957). These presentations do not necessarily portray completely the ideas presented here, for the determination of the amount of the minority interest may well have been one of concern over giving the minority its exact share of intercompany profits or losses. The presentations do depict the minority as a stockholder equity interest, and this seems basically sound.

Following the position taken here, the stockholders' equity section might appear in this manner:

Stockholders' Equity

Common Stock		
Minority Interest in Subsidiaries	$—	
Majority Company Stockholders	—	$—
Consolidated Retained Earnings		—
Total Consolidated Stockholders' Equity		$=

If all the intercompany profits have been eliminated, there is no need to break up the consolidated retained earnings account. The consolidated retained earnings amount will be the amount referring to the entity as a single enterprise. Alternatively, the minority interest in stock and retained earnings could be shown separately by apportioning the consolidated earnings to the minority and majority.[7] This would necessitate considering all intercompany profits and loss eliminations as adjustments to the several subsidiaries' income calculations before making regular eliminations. The minority interest could then be calculated on a new base income figure for a particular company, the amount ordinarily reported adjusted by the intercompany items.

In the instances where tiers of companies are related (parent, child, grandchild, etc.), the eliminations of intercompany items often approaches a complex algebraic problem. The elaborate technique needed to solve situations that assign the minority its exact interest is too refined. Again, if the position taken is that the statements are presented from the majority's standpoint, the necessity for exactitude in determining the minority interest pales. Since the retained earnings amount eliminated is that purchased at the outset of the affiliation, the total retained earnings figure will be the same (except where profits are left in the assets for the mi-

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[6] See page 19 of the 1957 report.

[7] The SEC advocates such a presentation, that is, a separation of the minority's interest in stock and earnings. While companies may do this in reporting to the SEC, this does not appear to be the practice in published statements. See Accounting Series Release 69.

nority) regardless of whether one dollar is said to belong to the minority or not. This search for exactitude does not change the retained earnings total; the only accomplishment is that of dividing the retained earnings between the majority and the minority.

Control over the disposition of the retained earnings balance rests with the majority in any event, otherwise consolidation would be unlikely in the first place. Moreover, where numerous subsidiaries are consolidated, the total minority interest, usually shown as a single figure, is a conglomeration of stock, deficits, and retained earnings. Such a total possesses little significance, at least to determine a specific minority interest in a given company. To be sure this is not the purpose behind preparing consolidated statements. As control over total earnings resides in the majority, little benefit stems from spelling out the portion of retained earnings applicable to each group. In many instances, on the grounds of materiality alone, the minority interest would not demand careful attention. This is not to be construed as advocacy of slipshod methods; the plea is for simplification without loss of useful information. Thus, the elaborate procedures often employed to define the minority interest seem to be unnecessary.

Summary

This paper emphasizes these points:

1. The minority interest is a stockholder equity interest and should be shown as such.
2. The variety of classifications presently used in showing the minority interest indicates that doubt exists as to its nature—liability, quasi-liability, or stockholder equity.
3. If the majority interest point of view is adopted, statements can be prepared from this standpoint and the minority can be brought along as a special stockholder equity interest.
4. Particularizing the minority share in retained earnings appears to be unnecessary since the total earnings is the same in the method described, and control over its disposition remains in the majority.

THE TEACHERS' CLINIC

GLEN G. YANKEE

EDITOR'S NOTE: This section of THE ACCOUNTING REVIEW is devoted to matters of particular interest to accounting instructors. The contribution of articles bearing on the nature and purpose of various types of accounting education, or dealing with techniques of accounting instruction, is invited. Address all correspondence to Glen G. Yankee, School of Business Administration, Miami University, Oxford, Ohio.

THE UNCONVENTIONAL IN ACCOUNTS PAYABLE

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Conventional accounting procedure necessitates the use of a multi-column voucher register in the recording of liabilities incurred for capital expenditures, materials, supplies, the many manufacturing expenses, selling and administrative expenses, etc. The multi-columns provide for the distribution of the voucher charges.

In contrast, this so-called unconventional system eliminates the many columns, and in their stead one column is used, an "Accounts Payable" column. As a consequence, only one journal entry is required at the end of each month to record the distribution of invoice charges. The charges are debited to specific asset, cost, or expense accounts, and the credit is to purchases. The distribution of these charges may be made by means of a punched-card system through use of voucher checks in many of its various designs or forms. For concerns whose volume is not great enough to warrant punched-card and mechanical sorting devices, the distribution may be made manually.

The Accounts Payable column mentioned above is debited only at the time of payment for all gross expenditures, excepting payroll, and purchases discounts and cash are credited. Therefore, journal entries are not required to record invoice charges and resultant liabilities at the time they are incurred.

The foregoing information presented in journal form would appear as follows:

In check register:

Accounts Payable	xxx	
Purchases Discounts		xx
Cash		xxx
To record purchase and payment of material, etc.		

In general journal:

Machinery and Equipment	xx	
Materials and Supplies	xx	
Manufacturing Expenses	xx	
Prepaid Items	x	
Selling Expenses	xx	
Administrative Expenses	xx	
Accounts Payable		xxx
To record distribution of purchases at month end.		

Accounts Payable Cycle. The complete course of procedure in this system is as follows:

1. Receipt of invoices:
   All invoices received are date stamped by the mail clerk and then passed to the purchasing department where they are alphabetically arranged and compared with the purchase orders as to description, quantity, price, terms, etc.
2. Verification of prices, distribution charges, etc.:
   The purchasing department clerk passes these invoices to an invoice clerk (in the purchasing department) for further processing.
   a. Each invoice is rubber stamped (Figure 1).
   b. Computations, extensions, and additions of prices are checked and verified.
   c. The gross amount on each invoice is encircled in red.
   d. The control items of the invoice stamp are filled in. The last item, "Approved by," is initialed to indicate approval for payment.

Invoice Stamp

Date Vouchered_____

P.O. Number_____

Terms_____

F.O.B._____

Date of Payment_____

Distribution_____

_____

Approved by_____

FIG. 1

3. Vouchering of invoices:

After approval for payment is made, the invoices are passed to an accounts payable clerk for vouchering by means of the check voucher (Figure 2). The following steps are performed at this stage of processing:

a. After a sufficient number of invoices have accumulated to constitute a batch, the invoices are sorted in accordance with dates of payment and alphabetically arranged within each payment group.

b. The figure encircled in red (gross amount subject to payment) on each invoice is added by machine tape to determine the total amount due creditors in each payment group. This is done for each batch of in-

CHECK VOUCHER

ABC Manufacturing Company

Vendor's Code 6025
In account with: XYZ Machine Co.

Date	Description			Amount		Amount	
1/15 (a)	Check No. 22253		Gross			150	00
			Discount			2	50
			Net			147	50
1/7 (b)	1/4 40,056 (c)	76,500 (d)	1%	50	00	115	
	1/5 40,059 (c)	76,504 (d)	2%	100	00	115 (f)	

Period	Code	Amount		Credit Memo	
				Amount	Code
1/59	115	150	00		

FIG. 2. (This information may be shown in carbon on the back of the vendors' checks or a duplicate copy may be attached to the check.)

Key to Letters

(a) Date of payment
(b) Date of vouchering
(c) Date of invoice
(d) Invoice number
(e) Purchase order number
(f) Distribution code

ACCOUNTS PAYABLE CONTROL

1959			Jr. Cr.	Returns	Payments	1959			Cash Received	Vouchered	Balance
						Jan	3			1,000 00	1,000 00
							4			350 00	1,350 00
Rules Jan	7		35 00	15 00			7				1,300 00
	10				700 00		10				600 00
							11	Harper Tool Co.	5 00		605 00

AUXILIARY ACCOUNTS PAYABLE in accordance with payment dates

January 10

1959			Jr. Cr.	Returns	Payments	1959			Cash Received	Vouchered	Balance
						Jan	3			500 00	500 00
							4			200 00	700 00
Jan	10				700 00						

January 15

1959			Jr. Cr.	Returns	Payments	1959			Cash Received	Vouchered	Balance
						Jan	3			400 00	400 00
							4			150 00	550 00
Jan	7		30 00	15 00			7				505 00

January 20

1959			Jr. Cr.	Returns	Payments	1959			Cash Received	Vouchered	Balance
						Jan	3			100 00	100 00
Jan	7		5 00				7				95 00
							11	Harper Tool Co.	5 00		100 00

FIG. 3. Memoranda accounts payable

voices to determine the total amount vouchered at any particular time, and to determine the total amount due creditors on each of five payment dates.[1]

c. The adding machine tape figures are compared with the invoice figures to check accuracy and to eliminate possible errors. The tape is dated to designate date of vouchering.

d. Vendors' code numbers are placed on each invoice.

e. The pack of checks for previously vouchered invoices, the accompanying check vouchers (which in reality constitute an accounts payable subsidiary ledger), and the invoices are placed side by side. These are, of course, in alphabetical order. The ledger pack, which includes checks due for payment on any of the five payment dates, is used for the present batch of invoices to be vouchered. In other words, each invoice does not take an individual check and check voucher if two or more, payable to the same creditor, are due for payment on the same date. There may be cases where ten invoices

[1] The volume of purchases is large enough to justify the vouchering of invoices day by day, but not sufficiently large enough to necessitate payment of invoices each and every day. Hence, the company's policy as affects payment of invoices is to make payment on the first, tenth, fifteenth, twentieth, or twenty-fifth day of each month. This arrangement is through agreement with creditors. To illustrate, an invoice dated January 4, whose terms are 2/10, *n*/30, would be paid on January 15, without loss of discount.

from one vendor are due for payment on the tenth of the month. The ten invoices are described only on one check voucher and in carbon on the back of the vendor's check.

f. After vouchering is completed, item 1, "Date Vouchered," of the stamp form is filled in.

4. Memoranda accounts payable entries:

The total (gross amount) of invoices vouchered by payment dates and the grand total are entered in the memoranda accounts payable in accordance with payment dates and in the accounts payable control (Figure 3). These accounts payable accounts are memoranda accounts which are not incorporated in the main accounting records. The memoranda accounts payable control shows the total amount outstanding from day to day, and the auxiliary accounts payable show the amounts outstanding on each of five payment dates.

5. Preparation of checks for payment and accounting entries:

Since the checks and check vouchers are classified alphabetically and according to payment dates, it is an easy matter to select the checks due for payment on any of the five payment dates. The checks due for payment naturally are those at the beginning of the accounts payable pack.

The total of all invoices represented on each check voucher is entered in pencil in the upper right-hand corner of the voucher (Figure 2). The cash discount is computed and the net amount of the check is determined. These amounts are also entered in the same block. After the gross amount, cash discount, and net amount are filled in on each check voucher; it is then necessary to complete the accompanying check for payment. This is done by typing the following on the face of the check:

a. Date of check
b. Payee
c. Net amount

The next step is to prove the accuracy of the total net amount of the checks before recording the information in the accounting records. An adding machine tape is used to determine the totals of the gross amount, cash discount, and net amount of the checks in the batch due for payment.

The check numbers are then stamped on each check and check voucher. After this step, the accounting entries are recorded in the check register and the total gross amount of the checks is recorded in the memoranda accounts payable. An entry for each individual check is made in the check register. (See Figure 3 for the entries in the memoranda accounts payable.)

The batch of checks is now ready for mailing after the proper signatures are affixed.

6. Preparation of invoices for inventory clerk:

Vouchered invoices must be prepared for inventorying. The receiving copies (duplicates of purchase orders), after being checked by the receiving and purchasing departments, must be matched with the invoices. Matched and vouchered invoices are then sent to the inventory clerk. These invoices represent the purchases of materials and supplies.

7. Preparation of check vouchers for monthly distribution of charges:

At the end of each month all voucher checks bearing charges incurred in the current month are removed from the ledger pack. The month to be charged, distribution code number, and the amount to be charged to each code are recorded in the space provided at the bottom of each check voucher (Figure 2). These voucher checks are now ready for card punching and then for the tabulation of monthly summary of the distribution of items purchased during the month.

8. Disposition of voucher checks:

The voucher checks representing checks mailed to creditors are filed; voucher checks representing unpaid checks are inserted in the current pack of checks and check vouchers.

CAN ACCOUNTING MEET THE CHALLENGE OF LIBERALIZED BUSINESS EDUCATION?

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Business school education has been the subject of many recent studies. Much attention has been given to a reexamination of the objectives of business training and the curriculum necessary to meet the demands of the business community for graduates who are broadly trained. The objectives generally agreed upon place emphasis on the type of training which develops in the student breadth and imagination, dependability, judgement, general administrative skills, personal drive and capacity for future self-development.

If accounting is to retain its respected place in the business curriculum, teachers of accounting must subject present course offerings to a searching reappraisal. There appears to be general agreement that accounting is an important analytical tool and, as such, is assured of a place in the business school curriculum. Just how important a position accounting is given depends to a large extent upon the role it accepts in the training of future business men. One important study in analyzing the role of the business school states:

"The business school can train the student in the use of analytical tools (statistics, accounting, economic analysis, etc.) and give him experience in using these tools in situations that resemble those he will encounter in the business world. . . . Through practice in the classroom he can make a start in learning how to combine innate intelligence, a command of analytical tools, and judgement in the solution of various kinds of business problems."[1]

Accounting as a "tool" subject will undoubtedly retain a place in the business curriculum but its role should not end there. If accounting meets the challenge offered all business subjects by the Gordon and Howell, the Pierson[2] and other studies, it should find itself in a position of greater importance than ever before. Which other subject can offer to the student an equal opportunity to apply the use of analytical tools in solving problems that resemble those he will meet in the business world?

Much stress has been placed upon the need to develop men for business leadership who will accept the responsibility of making decisions. Decision making cannot be taught in a vacuum. Certain broad principles may serve as a framework but the vehicle for presenting alternative choices must be found. In actual practice these alternative courses of action are presented to the executive through reports and accounting statements. We accounting teachers are, therefore, in a position to make a real contribution to the teaching of decision making. Accounting courses, particularly in the area of cost analysis and tax management, offer the vehicle for presenting the business student with the necessary situations and financial facts with which to practice making a choice between alternative courses of action. No other field of study lends itself as well to this important phase in the development of men of executive caliber.

If accounting is to reach its full potential in these areas, certain changes must be made. It must be recognized that it is an analytical tool for management in all functions of the business. The introductory course must, therefore, recognize its obligation to all business students. Ad-

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[1] Robert Aaron Gordon and James Edwin Howell, *Higher Education for Business*, Columbia University Press, N. Y. 1959, page 107–8.

[2] Frank C. Pierson and Others, *The Education of American Businessmen*, McGraw-Hill Book Co., N.Y., 1959.

vanced work in accounting must comprise a carefully thought out integrated succession of courses each of which has a definite objective in the development of future business men of high potential. These integrated courses may quite likely not follow the traditional course lines which are now set in a firmly established pattern in the accounting offerings of all business schools. With this in mind the following are suggested as accounting areas of possible significance.

Accounting Areas

Introduction to Accounting. Perhaps the most widespread and longest existing dissatisfaction with any phase of accounting teaching is found in this very important area. Encouragingly, the greatest attention is being given this subject. Experimentation showing serious thought, willingness to change, and a great deal of imagination is going on in many universities. Dissatisfaction stems from the fact that no other area fails so miserably to reach its objectives. This first course in accounting, offered to all business majors very early in their college career, should present the uses of accounting for those taking their place in all business functions. Instead it traditionally tries to make bookkeepers of them and plainly has as its purpose the preliminary training in methods and techniques upon which further accounting study is based. One recent author in speaking of the present first year accounting course says:

> "This course—open to everybody—was (and largely still is) as unimaginative, as ill-suited, and as unresponsive to the needs of the overwhelming majority of students, as it could possibly be."[2]

The introductory accounting course should sell accounting and recruit accounting majors from the best of the business students. Instead it is more likely to drive the student with imagination and initiative into other business fields and to attract the ones who like the detail and comfort of pat solutions to problems.

The experiments taking place appear to be of two major varieties:

(a) The interdisciplinary approach which seeks to combine the introductory teaching of two or more fields. Some courses of this nature have combined accounting with corporation finance—a most natural marriage if the objective is to introduce the student to business and the language of business. Another combines statistics and accounting, again a logical approach if its objectives are to give the student proficiency in business measurement—a tool course approach. Still another well known course of this nature combines accounting, statistics, and corporation finance. Other possibilities would be economics and accounting (national income accounting approach) and marketing and accounting (distribution cost accounting) or industrial management and accounting (production cost accounting).

These courses have, in my opinion, not fully solved the introductory accounting problem, largely because no real integration has yet taken place. If the two or three subjects are taught in separate compartments under one course title, the course is interdisciplinary in name but not in spirit. Most attempts to date have been of this nature.

(b) The "managerial approach" is now finding proponents in many schools. This approach is in the experimental stage as yet but shows great promise. The courses being tried out vary greatly. The least radical would take pretty much the traditional approach of teaching the procedural detail of accounting through the steps of the cycle and then go on to a presentation of the uses of accounting—usually divided into two groups, financial analysis of statements and managerial control through budgeting, cost accounting, and analysis. The other extreme would omit the procedural detail except to explain its nature and role in recording and controlling the accuracy of accounting data. This approach covers the same areas of analysis and costs but uses a statement approach.

[2] Harry D. Kerrigan, "Major Influences in Accounting Education," The Accounting Review, July 1959, page 403.

> Between these extremes, attempts are being made to reduce the amount of time spent on accounting procedures and to increase the emphasis on analysis and managerial uses of accounting information.

As long as we are admittedly experimenting with this approach, I throw my lot with those who are in far left field and wish to eliminate detail altogether—the statement approach. This appears logical to me because for those who will take their place in business functions other than accounting, the statement is the natural starting place to use accounting data in managerial decision making. Once this viewpoint is accepted, major revisions are obviously necessary to the second accounting course. Most of the remaining criticism and suggestions are somewhat wild ideas of my own.

Second Year Accounting. This, the first accounting course for accounting majors, must first complete the presentation of accounting techniques if they were omitted in the introductory course. This need not be a dry detailed presentation of procedures alone, however. It should be combined with a liberal amount of business practice and a sound introduction to basic business documents and procedures. This preliminary work could serve as the introduction to either:

(1) Industrial accounting (now called cost accounting).
(2) Financial accounting (now given as intermediate accounting).

Either of these courses could logically follow the introductory management course. Both are worthy of special consideration.

Industrial Accounting. The traditional cost course begins with a rapid and interesting presentation of the nature and flow of production costs. It then degenerates into a morass of detail with a great number of forms and much procedural accounting for materials, labor, and overhead on an actual cost basis. Much of this detail should be omitted with the frank admission that it will have to be learned on the job by those accounting majors who go on to jobs in cost accounting. Actually, this procedural detail varies greatly in practice according to the nature of the individual firm and accordingly, even for those who become cost accountants, much of what we now teach must be modified.

The new approach should place emphasis on the nature of cost accumulation and distribution. It should present the elements of job, process, estimated, and direct cost systems. Detail of material cost (the voucher system for instance) and labor cost (payroll procedures) should be largely eliminated unless included as part of the necessary basic procedural training omitted from the introductory course. Then it should be given in a separate section at the beginning of the course.

Now for some drastic suggestions. First, this course should cover both production and distribution cost accumulation and apportionments. The present neglect of control of administrative and selling costs is inexcusable. Next, the consideration of manufacturing, selling, and administrative cost should begin with budgeting and might well begin with standard costs (particularly for manufacturing costs). This is completely logical for controlling has four major divisions; 1. establishing the standards (standard cost for manufacturing and budgeting for selling and administrative costs), 2. measuring actual performance (job, process, estimated, and direct cost systems), 3. analyzing the variance from standard, and 4. taking corrective action.

Step number 3 above is of such importance that the major portion of the industrial accounting course should be concerned with it. Cost analysis must be given its rightful place and the cost accounting procedures we now spend so

much time on must be deemphasized. Problems in the areas of the use of cost information in pricing products and services, the decision to make or buy, lease or purchase, and the control of expenses and capital investment in plant and research are the areas of industrial accounting that train students in decision making. No other business school subject can do an equal job in this area with which it is very difficult to come to grips.

Financial Accounting. This course should, perhaps, most nearly agree with a traditional course, intermediate accounting. If the "march through the balance sheet" has not already been done in the first accounting course (and it should not be included there), this is the proper place to do so. Our present intermediate accounting course contains a great deal of duplication of the subject of the elementary principles course and the repetition can only be justified if the original treatment was so superficial that it need be done over again.

This course could well be an integrated combination of present intermediate accounting and introductory corporation finance. Generally accepted accounting principles should be dealt with thoroughly in this course. It should also contain a vigorous treatment of consolidated statements and a study in depth of financial analysis with thorough reference to actual industry financial indexes and individual large corporation statistics.

Tax Management. This title is chosen deliberately for it must cover all taxes; income, payroll, excise, and death taxes. Much dissatisfaction is being expressed with the approach in the present income tax course. There is a great emphasis on the details of the Federal income tax laws, with the result that the ordinary student fails to grasp the basic principles governing the tax. The reference book approach now used not only does not point up basic principles but actually hides them among a mass of decisions, rates, and other detail. Taxes other than the Federal income tax are given very short shrift or omitted entirely, and almost no attention is given to the effect of taxes on business decisions.

The new course should be taught using the case approach. The student must be given problems in using tax references, of course, but only as a supplement to the basic course work. The greatest amount of work remains to be done in this area in presenting the effect of taxes on decision making. Just as was stated in speaking of industrial accounting, this will probably be another most practical and down-to-earth method of teaching decision making.

Audit and Control. The present auditing course is an unfortunate mixture of internal auditing and CPA practice. These elements should be separated. Basic auditing techniques are equally applicable to both the company auditor and the CPA. Internal control procedures logically should be taught in this course since they are of equal importance to the internal and external auditor.

Auditing can probably best be taught by the case method. The current practice of using problems in generally accepted accounting principles (properly the subject matter of intermediate accounting) and questions of auditing and internal control procedures (encouraging the memorization of a list of numbered points) is unfortunate. This approach makes dry and uninteresting a topic that could be challenging and realistic. Cases involving practical situations of internal operational procedures and the related accounting records for various functions of the business would encourage the student to think and kindle his interest.

Accounting Theory. This topic quite typically taught in seminar fashion also needs attention and revitalizing. Generally accepted accounting principles, the under-

lying accounting concepts, and a basically sound theory of accounting (such as developed by Paton) should have been integrated in the accounting courses from the very beginning. If the accounting student has been brought along to his senior year without these most important parts of accounting, it is too late to save other than the most gifted from playing the role of a bookkeeper. Perhaps, a course such as this may be justified as an accounting research course but if so it could more logically take the form of an accounting honors seminar. In place of the accounting theory course I would like to recommend another course.

Accounting Reporting. This course should require a minimum of three accounting papers on various topics. History of accounting, current developments, case studies based upon the experiences observed in a particular firm, and reports of visits to data processing machine installations would make excellent subjects for such reports. Some of the materials now covered in the usual accounting systems course would also be well suited for written report coverage. Such a course would give the student practice in the written expression of his views. This would be invaluable in his later business life when most will be required at various times to prepare short written reports to superiors. The course would also offer the opportunity to acquaint the student with the professional journals, the AAA and AICPA bulletins and other important source materials for his continuing accounting education after he leaves college.

Professional Training

The above six courses (introduction to accounting, industrial accounting, financial accounting, tax management, audit and control, and accounting reporting) could well be all the accounting courses needed to prepare the accounting major for his future business career. It, of course, is necessary that the accounting major have a wide range of liberal arts courses and a sound training in other areas of business such as business economics, insurance, business law, finance, marketing, statistics, and management. This program would give the business graduate the broad background necessary for his continuing self education in both business and cultural subjects. It would also give him adequate preparation for his first position in business.

The student interested in the field of public accounting would not be adequately prepared. This student should be required to undergo a fifth year of professional training. This fifth year might well include the following courses:

Advanced Accounting Problems. This course could well be patterned along the lines of the present advanced accounting course with some of the features of the CPA review course. New subject matter should be introduced, particularly in the specialized areas such as accounting for estates and trusts, bankruptcy, reorganizations, and other subjects which are of concern largely to the professional accountant. The course should also offer a stiff review of other areas of accounting with emphasis upon the techniques of problem solving.

Advanced Federal Income Tax. Here the present day income tax course would unquestionably be appropriate. The students in this course, having had the tax management course, would be well prepared to cope with a detailed approach to the intricacies of the tax laws. The training offered by such a course in the use of the tax services in researching the answer to various tax problems would be invaluable to the professional accountant.

CPA Practice. This course would combine the practical and the theoretical. Practical training in techniques necessary for the CPA would include CPA type re-

ports and work papers. The theoretical portion of this course should include a consideration of ethics, legal liability, fee setting, types of services to be offered, and auditing standards of the certified public accountant.

SUMMARY

The course program herein offered is a possible path for accounting to follow in seeking its role in answer to the challenge thrown out to business education. It should, perhaps, not be called a program for it is much too incomplete for such a formal characterization. It is intended, rather, as a point of departure from a pattern of teaching which, without question, must be revised in order to meet the demands which are increasingly being leveled at it. It is to be hoped that many different paths will be attempted and there is much evidence in the accounting departments of our universities that such will be the case.

THE USE OF VISUAL AIDS IN ELEMENTARY AND INTERMEDIATE ACCOUNTING TO DETERMINE THEIR PRACTICAL VALUE IN THE CLASSROOM

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This experiment with visual aids was undertaken to determine the practical value of using such aids in a classroom. Further, we wished to determine if the aids were of value and to what extent they would help in large classes. That is, would they make it possible to teach large classes as effectively as small classes?

Rather than take the researcher's results alone it was felt that perhaps the expressions of the students would lend valuable aid in arriving at the conclusions for this report. To get this expression from the students the instructor continually asked for the students' reaction to the method in use as opposed to other methods to which they (the students) had been exposed. Finally, the instructor asked the advanced class to write a paragraph or two concerning their feeling for this type of instruction. (A typical student paper is attached to this report.)

How the Experiment Was Conducted. The classes were held in the regular classroom where the audio visual aids are located. Series of film strips were used which covered the same points that had been explained with the use of the viewgraph. The viewgraph was used to develop the problems so that the class could see and hear at the same time the explanation of the particular points being covered. Whenever a long problem was to be covered, all possible information was set up on plastic plates to reduce the time needed to write, thus giving more time for discussion. Students were expected to take part in the discussion at all times. The instructor did not permit the students to say "I don't know" but returned to more elementary ideas in accounting which the student did understand and step by step brought them to the difficult point in question. At each step throughout the explanation other students would contribute to the problem, thus giving confidence to the weaker student who was at that time having difficulties. Every accounting principle of any importance covered by the text and which did not seem beyond the student was discussed, using the viewgraph to illustrate the point in question. Quizzes were given

over all material covered and after correcting the quizzes the instructor discussed the problems in class, giving each student an opportunity to bring up the points of interest on which he was weak. In the intermediate accounting class, consolidation problems were set up ahead of class as a worksheet and developed by the students during class. Late in the semester some illustrations were made on the blackboard so that the students in the elementary class could contrast the two methods of presentation.

Findings Affecting the Instructor. The use of film strips were of little practical value as the illustrations were not complete. Also, the students were in a dark room and reacted as though this was a movie for pleasure instead of an accounting class. As a result of this attitude of the student and insufficient illustrations on the film strip the instructor believes that it would be best not to take the time to show the film strips.

The instructor found that the presentation of problems with the viewgraph was much superior to presentation on the blackboard. This was, of course, the result of planning the work ahead of time and writing the early parts on the plastic sheets. This preliminary work made it possible to cover the points being explained from several possible directions. Possibly part of the favorable results obtained came from the fact that the instructor faced the class while making the explanations on the viewgraph.

The instructor had a feeling in the elementary class, though not substantiated, that he was not part of the illustration when using the viewgraph whereas in blackboard explanations he felt that he was an important part of any explanation. It was as though he was a man in a movie travelogue, the audience was there but yet far away.

The elementary class in this case failed to be a true sample of the overall elementary classes. It consisted of several students who had failed before. Further indications of a poor sample of elementary students was the fact that the class included many late registrants. This late registration may or may not indicate the type of student that was included in this class, but in this case it seemed to be so.

The advanced class, in the opinion of the writer, was by far the best class for using the viewgraph. First, all students were intensely interested in everything brought up and discussed. Further, they each took advantage of the opportunity to discuss points in which they were weak. The number of problems covered with the viewgraph could never be approached by any other method as it is almost impossible to cover long problems such as consolidated working papers, statement of applications of funds, etc. on the blackboard. In the writer's opinion, this was the most adequate teaching experience for this type of problem which he has ever had.

In general, the students in the elementary class preferred the blackboard; however, students in the advance class preferred the viewgraph. The preference of the elementary class perhaps resulted from several things. The students had to stand around in the hall because the door of the visual aids room is kept locked. This may give them a feeling that they should not be in the room at all. The unlocking of the room each time caused a further delay in settling down for the class period. Although the students entered when the door was unlocked, they never seemed ready to go to work. This again may have been caused by the problem of the unsteady roll stand upon which the viewgraph was placed and in the necessity of refocusing the viewgraph each class period.

The instructor found this method of teaching was most satisfying when the stu-

dents responded. However, it appeared more difficult to bring the students into discussions if they were disinterested in this required subject. Again the instructor felt that the quality of the class (elementary) as a whole was poor and that therefore he did not get the results that he expected in grades or understanding.

General Conclusions and Observations. The viewgraph is a definite aid for the instructor in covering the accounting work, but it must be realized that, in itself, it does not solve all the problems of teaching accounting. Rather than use the viewgraph for entire class periods, it may be better to use it only when space and time are at a premium. It is definitely of value to the instructor and the student in both elementary and advanced accounting. It can be made more valuable if equipment and sufficient supplies are available at all times in the class room. It is a greater aid in advanced accounting than in elementary accounting, primarily because of the length and difficulty of the problems attacked in advanced accounting.

In this particular experiment the teacher and students were at a disadvantage due to the fact that the viewgraph was on an unstable roll stand and could not be adjusted to the right angle to get full use of the screen. Perhaps one of the real disadvantages not mentioned is the fact that the middle portion of the room could not be used because the viewgraph blocked the view of the students.

Although small classes give the student the advantage of discussing the problems in the class, the viewgraph could very well be used in large classes with many of the disadvantages of the blackboard discussion removed. However, regardless of the size of the class, to use the viewgraph effectively it will always be necessary to have more planning and preparation than is otherwise necessary.

It is the belief of the writer that the students would have increasing benefits from use of the viewgraph as the instructor becomes familiar with the many different things that can be done in presenting accounting information to them.

PROFESSIONAL EXAMINATIONS

ACCOUNTING PRACTICE

HENRY T. CHAMBERLAIN AND JOHN H. CHAMBERLAIN

THE following problems were prepared by the Board of Examiners of the American Institute of Certified Public Accountants and were presented as the first half of the C.P.A. examination in accounting practice on May 18, 1960.

The candidates were required to solve problems 1, 2, 3 and 4 and either problem 5 or problem 6.

The suggested time allowances are as follows:

Problem 1	25 to 35 minutes
Problem 2	60 to 95 minutes
Problem 3	30 to 45 minutes
Problem 4	35 to 50 minutes
Problem 5 or Problem 6	30 to 45 minutes

Number 1

Houston Factors, Inc. was incorporated December 31, 1959. The capital stock of the company consists of 100,000 shares of $10 par value each, all of which was paid in at par. The company was organized for the purpose of factoring the accounts receivable of various businesses requiring this service.

Houston Factors, Inc. charges a commission to its clients of 2% of all receivables factored and assumes all credit risks. Besides the commission, an additional 10% of gross receivables is withheld on all purchases and is credited to Client Reserve. This reserve is used for merchandise returns, etc., made by customers of the clients for which a credit memo would be due. Payments are made to the clients by Houston Factors, Inc. at the end of each month to adjust the reserve so that it equals 10% of the unpaid receivables as at the month's end.

Based on the collection experience of other factoring companies in this area, officials of Houston Factors, Inc. have decided to make monthly provisions to Allowance for Bad Debts based on ½% of all receivables purchased during the month.

The company also decided to recognize commission income on only the factored receivables which have been collected; however, for bookkeeping simplicity all commissions are originally credited to Commission Income and an adjustment is made to Unearned Commissions at the end of each quarter based on 2% of receivables then outstanding.

Operations of the company during the first quarter of 1960 resulted in the following:

Accounts receivable factored

January	$200,000
February	400,000
March	300,000

Collections on the above receivables totaled $700,000.

General and administrative expenses paid during the period were as follows:

Salaries	$5,000
Office rent	900
Advertising	500
Equipment rent	1,600
Miscellaneous	1,000

On February 1, 1960 a three month 6% bank loan was obtained for $500,000, with interest payable at maturity.

For the first three months of the year, the company rented all of its office furniture and equipment; however, on March 31, 1960 it purchased various equipment at a cost of $5,000, liability for which had not been recorded as of March 31.

Required:

a. All entries necessary to record the above transactions and to close the books as at March 31, 1960. (Disregard all withholding taxes and the company liability for F.I.C.A. and federal income taxes.)

b. A balance sheet and an income statement for Houston Factors, Inc., as at March 31, 1960.

Number 2

The Rickard Company's fiscal year ended March 31, 1960. Your examination the preceding year disclosed that the internal control was weak. The staff and organization was unchanged.

The office manager was unable to reconcile the bank statements at March 31st, and opened an account called "Exchange" for $170 in order to balance his preliminary trial balance.

In your discussions with Mr. Rickard, the owner , you learned that receipts from cash sales were deposited only once a week, in the Central Bank. All disbursements were made by checks drawn on either the Central or State Bank. The checks were drawn upon either bank regardless of the type of expenditure.

Mr. Rickard also revealed that he attended a convention early in March and drew several checks (which have not been recorded) while entertaining prospective buyers.

You have available the following records of the client:

1. The cash receipts book for March 1960.
2. The cash disbursements book for March 1960.
3. The general ledger cash accounts.
4. The bank reconciliation of both bank accounts at February 29, 1960.
5. The bank statement and accompanying data for March from the Central Bank.
6. The bank statement and accompanying data for March from the State Bank.

As part of your confirmation procedure you requested and received directly:

7. A cut-off statement dated April 11, 1960 and accompanying data from the Central Bank.
8. A cut-off statement dated April 11, 1960 and accompanying data from the State Bank.

Required:

a. Reconcile both bank balances to the adjusted cash balances as of March 31, 1960.

b. Prepare all necessary journal entries to adjust the cash accounts at March 31, 1960. (Assume that the books have not been closed.)

1. *CASH RECEIPTS BOOK*

Date	*Account Credited*	*LF*	*Amount*	*Accounts Receivable Credit*	*CASH* *Central Bank Debit*	*CASH* *State Bank Debit*
1960						
March 1	B. Hillman	√		686		686
2	Notes receivable	130	2,400			
	Interest income	813	24			2,424
4	Sales	401	5,497		5,497	
9	M. Walker	√		1,587		1,587
10	Purchase allowances	519	684			684
11	B. Kline	√		770		770
11	Sales	401	6,533		6,533	
14	Notes receivable discounted	131	2,000			2,000
18	Sales	401	1,629		1,629	
23	B. Mercedes	√		800	800	
25	Sales	401	1,502		1,502	
31	W. Benson	√		713		713
			20,269	4,556	16,061	8,864

2. *CASH DISBURSEMENTS BOOK*

Date	*Account Debited*	*LF*	*Amount*	*Accounts Payable Debit*	*Check No.*	*CASH* *Central Bank Credit*	*CASH* *State Bank Credit*
March 2	M. Moss	√		737	634	737	
4	Office supplies	701	73		635	73	
10	Insurance	707	217		1,080	217	
10	Note payable	230	2,800				
	Interest expense	713	14		1,081		2,814
11	Office furniture	145	210		1,082		210
14	Selling expense	509	200		636	200	
18	Queen Co.	√		1,600	637	1,600	
18	O. Randolph Co.	√		2,156	638	2,156	
23	Contribution	728	200		1,083		200
25	Sales allowances	403	17		1,084		17
28	Salaries	702	845		639		845
31	A. Hansen & Co.	√		363	640	363	
31	I. Marlon	√		612	1,085		612
			4,576	5,468		5,346	4,698

3. General ledger—Cash accounts:

Cash—Central Bank

1960					1960		
March 1	Balance	√	5,843		March 31	CD	5,346
31		CR	16,061				

Cash—State Bank

1960					1960		
March 1	Balance	√	733		March 31	CD	4,968
31		CR	8,864				

4.

Rickard Company

BANK RECONCILIATION

February 29, 1960

		Central Bank	*State Bank*
Balance per books, February 29, 1960		$5,845	$ 736
Less bank charges		2	3
Adjusted balance, February 29, 1960		$5,843	$ 733
Balance per bank statement, February 29, 1960		$4,836	$3,237
Add deposit in transit		2,100	-0-
		6,936	3,237
Less outstanding checks:			
No. 629	$ 17		
630	52		
633	1,024	1,093	
No. 1062	2,402		
1074	43		
1079	59		2,504
Adjusted balance, as above		$5,843	$ 733

Central Bank

5.

STATEMENT

Account: The Rickard Company

Date	*Charges*		*Deposits*	*Balance*
1960				
Feb. 29				4,836
March 1			2,100	6,936
2	1,024	52		5,860
4	73		5,497	11,284
11	150	175	6,533	17,492
14	737	7DM		16,748
15	1,013DM			15,735
18	200	1,600	1,629	15,564
24	2,156		800	14,208
25	87		1,502	15,623
28	845			14,778
31	363DM			14,415

Cancelled checks returned with bank statement:

No. 630	$ 52	No. 636	$ 200
633	1,024	637	1,600
634	737	638	2,156
635	73	639	845
—	150)	Drawn by Mr. Rickard while attending convention.	
—	175)		
7268	87	Check written by Rickard Co.	

Bank debit memoranda enclosed with bank statement:

Service charge		$ 7
For certified check (No. 640)		363
Charge for note of R. Walbert discounted by The Rickard Company and dishonored by R. Walbert at maturity:		
Face of note	$1,000	
Interest @ 6% for 60 days	10	
Protest fee	3	1,013

State Bank

6. *STATEMENT*

Account: The Rickard Company

Date		*Charges*		*Deposits*	*Balance*
1960					
Feb.	29				3,237
March	1	43	59	686	3,821
	2	2,402	689DM	2,424	3,154
	9			1,587	4,741
	11	2,814	4DM	1,454	3,377
	14	217DM		2,000	5,160
	18	220		686	5,626
	25			1,900CM	7,526
	31	17			7,509

Cancelled checks returned with bank statement:

No. 1062	$2,402	No. 1081	$2,814
1074	43	1082	220
1079	59	1084	17
1080	217		

Debit memoranda enclosed with bank statement:

Service charge		$ 4
For certified check (No. 1080)		217
Charge for an "insufficient funds" check of B. Hillman:		
Face of check	$686	
Protest fee	3	689

This check was subsequently redeposited.

Credit memorandum included with bank statement:

For Mueller Co. non-interest bearing note entered for collection and subsequently collected $1,900

Central Bank

7. *STATEMENT*

Account: The Rickard Company

Date		*Charges*		*Deposits*	*Balance*
1960					
March	31				14,415
April	1			713	15,128
	6	959		87EC	14,256
	8	82	43	2,530	16,661
	11	55	167		16,439

Cancelled checks attached to bank statement:

No. 646	$959	No. 650	$167
647	82	651	55
—	43	Check written	

State Bank

8. *STATEMENT*

Account: The Rickard Company

Date		*Charges*	*Deposits*	*Balance*
1960				
March	31			7,509
April	1	153	2,540	9,896
	4	70		9,826
	8		1,732	11,558
	11	200		11,358

Cancelled checks returned with bank statement:

No. 1083	$200	
1090	153	
—	70	Drawn by Mr. Rickard while at convention during March

Number 3

Dr. John Black, M.D., a general practitioner in Salt Lake City, Utah, asked you to prepare his 1959 federal income tax return and to use those benefits afforded under the law which will result in the lowest tax. Dr. Black, aged 35, and his wife who is 27, have one son born on December 29, 1959. Mrs. Cary Dorga, the mother of Mrs. Black, aged 67, lives with the Blacks; she has no separate income.

In prior years Dr. Black has reported his income on a cash basis. Mrs. Black has no income other than that reported below. Pertinent data are summarized from Dr. Black's records as follows:

Income:	
Professional receipts	$20,000
Dividends received on capital stock:	
Beneficial Mutual Life Insurance Co. (in husband's name)	300
Union Pacific Railroad Co. (in wife's name)	250
Dividend received on National Service Life Insurance Policy	60
Dividends credited account with Federal Savings & Loan	120
Proceeds from 4—$100, maturity value, Series E. U. S. Savings Bonds, no portion reported in prior years	380
Interest on Murray City Bonds	50
Proceeds from sale of 1,000 shares of Canyon Uranium bought 2/28/59 for $.50 per share and sold 8/29/59 for $1.50 per share	1,500
Advance royalties received on a non-productive oil and gas lease (no cost basis)	1,000
Directors fees—XYZ Corporation	400
Proceeds from sale of 1957 automobile (used 100% in business) purchased 3/1/57 for $3,650 and sold 6/21/59. To date of sale $1,670 in depreciation had been claimed	1,830
Expenditures:	
Wages paid receptionist	$4,000
Office rent	1,000
Drugs and supplies	3,985
Other professional expenses	400
Depreciation on 1957 automobile	340
Personal property tax (office property)	15
1959 automobile purchased on 7/1/59 (used 100% in business; useful life 5 years)	3,750
Interest paid on home mortgage to Peoples Bank	200
Contributions—Church	100
Contributions—Community Chest	50
Property taxes—home	150
State sales taxes on personal expenditures	50
Utah state income taxes	100
Medical expenses:	
Paid for Mrs. Black's mother—Doctors—$70; Hospital—$180	250
Paid for own family—Dentist—$150	150
Payments made on 1959 Declaration of Estimated Federal Income Tax to Utah Director	1,600

Required:

Compute the amount of the 1959 taxable income, using appropriate schedules to disclose your analysis.

Number 4

You have been engaged to make an audit of the records of Flowers, Inc. for the year ended December 31, 1959. The records of the company have not been previously audited.

The following is a summary trial balance as of December 31, 1959:

Current assets	$567,750	
Real estate	304,500	
Allowance for depreciation		$ 90,660
Current liabilities		137,000
Suspense		80,000
Capital stock		396,250
Retained earnings		168,340
	$872,250	$872,250

You are able to determine that the current assets, current liabilities and allowance for depreciation are reasonably stated. In the course of your investigation you learn the following information:

1. The company was organized on January 1, 1950 as a successor to a single proprietorship operated by Mr. Arthur Growmore, president of Flowers, Inc. Mr. Growmore had previously developed an enviable reputation as a grower of quality flowers. At the date of incorporation, he invested assets with the following fair market values in exchange for 2,000 shares of $100 par value stock: land (twenty acres), $50,000; greenhouses, $100,000. The Board of Directors passed a resolution stating the land and the greenhouses should be recorded at their fair market value and that tax consequences should be disregarded. However, the bookkeeper recorded the transaction in the following manner:

Real estate	$200,000	
Capital stock		$200,000

The remaining 1,500 of the 3,500 shares authorized were sold to other stockholders at par.

2. On January 1, 1952, the stockholders agreed to donate ¼ of their shares to the corporation as treasury stock to be sold to raise funds for expansion. Mr. Growmore's donation was recorded by debiting Capital Stock $50,000 and crediting Real Estate for the same amount. No entry was made to record the donation of 375 shares by other stockholders. All donated shares were resold to outsiders at 110 and the proceeds were credited to the Capital Stock account.

3. Additional land costing $54,000 and buildings costing $99,000 have been acquired since the corporation was organized.

4. As a result of condemnation proceedings, Flowers, Inc. sold eight acres of the land invested by Mr. Growmore to the county for construction of a school. The sale occurred on July 1, 1959 and the price was determined as follows:

Land—8 acres at $5,000 per acre	$40,000
Flower crop growing on the land	37,000
Payment to cover nursery's cost of moving fence	3,000
	$80,000

5. The proceeds of the sale have been placed in a suspense account inasmuch as the company plans to replace the condemned land. According to the bookkeeper, the reason for doing this is that any gain or loss on the transaction cannot be determined until the cost of replacing the property is known, since for tax purposes this is an involuntary conversion.

6. On August 1, 1959 the nursery acquired a 60 day option to purchase a five acre plot near them. The $500 paid for the option was charged to the Real Estate account. The option expired without being exercised.

On December 1, 1959 they acquired a 90 day option on another piece of land, with no crops growing thereon, similar in size and quality to that obtained from them by the county as a result of condemnation proceedings. As of the date of your examination this option has not been exercised, but the company states that they intend to exercise the option and acquire the property. The $1,000 paid for this option was also charged to the Real Estate account.

7. The company's provision for federal income tax has not been recorded; the tax is computed and amounts to $24,615.

Required:

a. A worksheet analysis of the Real Estate account.

b. Journal entries to record the adjustments which should be made to the accounts of Flowers, Inc.

c. A balance sheet as of December 31, 1959.

Number 5

In April, 1959, The Hardin Corporation stockholders approved the adoption of a "Deferred Compensation Plan for Officers and Key Employees" starting with the calendar year ending December 31, 1959. The plan provides, among other things,

1. that allotments to participants under the Plan shall consist of cash or of cash and common stock of The Hardin Corporation;

2. that the cash allotment shall be paid in the year in which allotted and that the balance of the participants' allotment shall be payable solely in common stock of The Hardin Corporation;

3. that the stock so allotted shall be treasury stock purchased by the Corporation, and no authorized but unissued stock shall be used for purposes of the Plan;

4. that during the calendar year the total amount to be set aside and credited to the Deferred Incentive Compensation Fund shall be determined by the Board of Directors but shall not exceed the following:

> $.40 of the 1st $1.00 per share earned in excess of $1.50 per share
> $.30 of the 2nd $1.00 per share earned in excess of $1.50 per share
> $.20 of the 3rd and each succeeding $1.00 per share earned in excess of $1.50 per share
> or a proportionate amount of any fraction of a dollar.

Earnings per share shall be based on The Hardin Corporation's net income, after provision for federal income taxes (calculated at the rates in effect during 1959—52% less $5,500), but before the provision contemplated by this Plan and its tax effect and on the average number of shares of common stock of the Corporation outstanding during the calendar year (computed on an average monthly basis to the nearest 10 shares).

However, the maximum amount to be set aside from such earnings in excess of $1.50 per share for the purposes of this Plan shall not in any year exceed 18% of the net income for the year after federal taxes but before provision for deferred incentive compensation.

At December 31, 1959 the records of the Corporation reflect the following data:

a. On December 10, 1959 the Board of Directors approved a provision for deferred incentive compensation in the amount of $76,000 for the year ended December 31, 1959.

Of this amount, 20% was to be paid in cash prior to December 31, 1959, and the balance set aside for stock allotment. (The cash portion was paid on December 29, 1959.)

b. The condensed statement of income for the year ended December 31, 1959 follows:

Net Sales		$5,448,341
Costs and expenses:		
Cost of goods sold	$3,765,000	
Selling and administrative	799,000	
Provision for deferred incentive compensation	76,000	4,640,000
Operating income		808,341
Provision for federal income taxes (52% less $5,500)		414,837
Net income		$ 393,504

c. Analysis of the common stock accounts show that there were 150,000 shares of common stock authorized at December 31, 1958 and 1959, and 140,000 shares issued and outstanding at December 31, 1958. On June 1, 1959 the Corporation purchased, in the open market, 9,651 shares of its stock at an average price of $20.75 per share, which shares were held in the treasury at December 31, 1959. There were no other changes in common stock during the year.

d. You are advised that the total provision for deferred incentive compensation in any year is an acceptable federal income tax deduction in the year provided, if in accordance with the terms of the plan.

Required:

A statement in good form showing the computations of the maximum amounts available for deferred incentive compensation as computed under the two limitations set forth in the Plan.

Number 6

The Village of Hope, by referendum on November 30, 1958, was authorized to sell bonds, the proceeds of which were to be used for constructing a municipal building to provide adequate facilities for the offices and departments of the Village. The cost of the building was estimated to be $90,000, and the ordinance provided for the issuance of general obligation bonds in that amount, at an interest rate of three per cent per annum. Bonds were to be dated January 1, 1959 and were to become due and payable in equal annual installments on January 1 of each of the years 1961 to 1969, inclusive. Interest was to be due semiannually on January 1 and July 1, except that the first coupon was to be due on July 1, 1960. Bonds were to be payable out of the proceeds of a direct annual tax sufficient to pay the principal and interest when due.

The Village advertised for bids on the bonds, and on January 15, 1959, the bids were opened and the bonds awarded to Municipal Bond Company. The following transactions occurred:

1. November 30, 1958—Bonds were authorized in accordance with the referendum.
2. February 1, 1959—Bonds were sold to Municipal Bond Company and a certified check was received in the amount of $93,636, including premium and accrued interest at three per cent to date of sale.
3. February 10, 1959—Initial architectural fees of $2,000 were paid to the firm which prepared the plans and specifications and was to have construction supervision. The fee for their services was to be six per cent of the building cost.
4. April 15, 1959—The general contractor had bid $81,400 to construct the building.

The first contractor's estimate in the amount of $30,000 was received from the architect, properly approved. The estimate was paid, less ten per cent retained until the building was accepted by the Village.

5. July 30, 1959 (Entry as of September 1, 1959)—The appropriation ordinance of the Village for the fiscal year ending August 31, 1960 was adopted. The ordinance contained provision for the retirement of the bonds due on January 1, 1961 and interest due through that date. It has been the experience of the Village that the tax levy should provide an additional three per cent to provide for losses and costs on collection.

6. September 20, 1959—The final contractor's invoice was received in the amount of $54,500, including approved extras totaling $3,100. The invoice was paid less a ten per cent retention. At the same time, an invoice in the amount of $2,000 was paid to the architects.

7. December 21, 1959—Final approval of the building was given by the architect and the Board of Trustees and final payments were made to the general contractor and architect.

Required:

Journalize the above transactions. Prepare entries for *each* of the applicable funds, and *key* the entries to the transaction number indicated. No entries need be considered to close out the various revenue and expenditure accounts at August 31, 1959.

Solution to Problem 1

HOUSTON FACTORS, INC.
JOURNAL ENTRIES
FIRST QUARTER, 1960

1) Cash		$1,000,000	
Capital Stock			$1,000,000
To record sale of capital stock			
2) Accounts receivable factored		$ 900,000	
Cash			$ 792,000
Client reserve			90,000
Commission income			18,000
To record factoring of accounts receivable in the first quarter			
3) Cash		$ 700,000	
Accounts receivable factored			$ 700,000
To record collections on factored receivables in the first quarter			
4) Commission income		$ 4,000	
Unearned commission income			$ 4,000
To adjust commission income for factored receivables not yet collected			
5) Bad debt expense		$ 2,250	
Allowance for bad debts			$ 2,250
To provide for bad debts at the rate of ½ of one percent of receivables purchased			
6) Client reserve		$ 70,000	
Cash			$ 70,000
To adjust client reserve to 10% of unpaid receivables			
7) Salaries		$ 5,000	
Office rent		900	
Advertising		500	
Equipment rent		1,600	
Miscellaneous expense		1,000	
Cash			$ 9,000
To record expenses incurred in the first quarter			
8) Cash		$ 500,000	
Note payable			$ 500,000
To record a three month bank loan on February 1, 1960 with interest at 6% payable at maturity			

9) Interest expense		$ 5,000		
Accrued interest payable				$ 5,000
To record interest expense for two months on $500,000 at 6%				
10) Office equipment		$ 5,000		
Accounts payable				$ 5,000
To record the purchase of office equipment				
11) Commission income		$ 14,000		
Profit and loss		2,250		
Bad debt expense				$ 2,250
Salaries				5,000
Office rent				900
Advertising				500
Equipment rent				1,600
Miscellaneous expense				1,000
Interest expense				5,000
To close income and expense to profit and loss				

HOUSTON FACTORS, INC.
BALANCE SHEET
MARCH 31, 1960
ASSETS

Cash		$1,329,000
Accounts receivable factored	$200,000	
Less allowance for bad debts	2,250	197,750
Office equipment		5,000
Total assets		$1,531,750

LIABILITIES AND CAPITAL

Note payable	$ 500,000
Accounts payable	5,000
Accrued interest payable	5,000
Client reserve	20,000
Total liabilities	$ 530,000
Unearned commission income	$ 4,000
Capital stock, 100,000 shares, $10 par value	$1,000,000
Retained earnings (deficit)	(2,250)
	$ 997,750
Total liabilities, unearned income, and capital	$1,531,750

HOUSTON FACTORS, INC.
STATEMENT OF INCOME AND EXPENSE
FOR THE THREE MONTHS ENDED MARCH 31, 1960

Commission income		$14,000
Less expenses:		
Salaries	$5,000	
Interest expense	5,000	
Bad debt expense	2,250	
Equipment rent	1,600	
Office rent	900	
Advertising	500	
Miscellaneous	1,000	
Total expenses		16,250
Net deficit for the three months ended March 31, 1960		$(2,250)

Solution to Problem 2

RICKARD COMPANY
BANK RECONCILIATION
MARCH 31, 1960

	CENTRAL BANK		*STATE BANK*	
	Per Books	*Per Bank*	*Per Books*	*Per Bank*
Balance per books at 3-31-60:				
Balance at 2-29-60	$ 5,843		$ 733	
Cash receipts per general ledger	16,061		8,864	
Cash disbursements per general ledger	(5,346)		(4,968)	
Total	16,558		$4,629	
Balance per bank at 3-31-60		$14,415		$7,509
Outstanding checks:				
No. 629 $ 17		(17)		
1083 $200				
1085 612				(812)
Unrecorded outstanding check			(70)	(70)
Unrecorded checks drawn during convention which cleared in March ($150+$175)	(325)			
Check No. 639 erroneously recorded as a State Bank check	(845)		845	
Check No. 1080 erroneously recorded as a Central Bank check	217		(217)	
Error in recording or writing check No. 1082			(10)	
R. Walbert note dishonored—charged back by bank	(1,013)			
Bank service charges (including protest fees)	(7)		(7)	
Footing error in cash receipts book (total receipts should be $15,961)	(100)			
Posting error in recording cash disbursements (amount posted should be $4,698)			270	
Check of the Rickard Co. erroneously charged to this account		87		
Deposit of 3-31-60 in transit to the Central Bank but recorded as a deposit in the State Bank	713	713	(713)	
Mueller Co. note collected by bank			1,900	
Balance per books at 3-31-60 as adjusted	$15,198	$15,198	$6,627	$6,627

RICKARD COMPANY
ADJUSTING JOURNAL ENTRY
MARCH 31, 1960

	DR.	*CR.*
State Bank	$1,998	
Convention expense	395	
Furniture and fixtures	10	
Accounts receivable	1,013	
Expense	14	
Notes receivable		$1,900
Exchange		170
Central Bank		1,360

Solution to Problem 3

DR. JOHN BLACK, M.D.
COMPUTATION OF TAXABLE INCOME
FOR THE YEAR ENDED DECEMBER 31, 1959

Business income:		
Professional receipts		$20,000
Less expenses:		
Receptionist's wages	$4,000	
Office rent	1,000	
Drugs and supplies	3,985	
Other professional expenses	400	
Depreciation on 1957 automobile	340	
Depreciation on 1959 automobile:		
Declining balance method—⅓ of 40% of $3,750.00	750	
Personal property tax	15	
Loss on sale of 1957 automobile	130	10,620
Net business income		$ 9,380

Other income:		
Dividend income:		
Beneficial Mutual Life Insurance Co. (no dividend exclusion)	$ 300	
Union Pacific Railroad Co., less $50.00 dividend exclusion	200	
Federal Savings and Loan (no dividend exclusion)	120	
Interest on Series E bonds	80	
50% of long term gain on sale of Canyon Uranium stock	500	
Oil and gas royalties, net of 27½% depletion allowance	725	
Directors fees	400	2,325
Adjusted gross income		$11,705
Deductions from adjusted gross income:		
Standard deduction	$1,000	
Four exemptions	2,400	3,400
Taxable income		$ 8,305

Solution to Problem 4

(a) *ANALYSIS OF REAL ESTATE ACCOUNT*

	Real Estate (per books)	*Corrected*					
		Land	*Buildings*	*Paid-in Surplus*	*Retained Earnings*	*Option on Land*	*Goodwill*
January 1, 1950	$200,000	$ 50,000	$100,000				$50,000
January 1, 1952	(50,000)			$(50,000)			
Additional land and buildings	153,000	54,000	99,000				
August 1, 1959	500				$500		
December 1, 1959	1,000					$1,000	
	$304,500	$104,000	$199,000	$(50,000)	$500	$1,000	$50,000

(b) *JOURNAL ENTRIES (ADJUSTMENTS)*

(1)

Land	$104,000	
Buildings	199,000	
Goodwill	50,000	
Option on land	1,000	
Retained earnings	500	
Paid-in surplus		$ 50,000
Real Estate		304,500
To reclassify the real estate account		

(2)

Treasury stock	$ 50,000	
Capital stock		$ 50,000
To correct the capital stock account and to charge treasury stock for Mr. Growmore's donation		

(3)

Treasury stock	$ 37,500	
Paid-in surplus		$ 37,500
To record donation of other shareholders		

(4)

Capital stock	96,250	
Treasury stock		$ 87,500
Paid-in surplus		8,750
To correct the capital stock account for sale of treasury stock		

(5)

Suspense	$ 80,000	
Land		$ 20,000
Retained earnings		$ 60,000
To credit the land account with the cost of land condemned and to close the balance of the account to retained earnings		

(6)

Retained earnings	$ 24,615	
Accrued federal income taxes		$ 24,615
To set up the estimated federal income tax liability		

(c)

FLOWERS, INC.
BALANCE SHEET
DECEMBER 31, 1959
ASSETS

Current assets		$567,730
Land		84,000
Buildings	$199,000	
Less allowance for depreciation	90,660	108,340
Option to purchase land		1,000
Goodwill		50,000
		$811,070

LIABILITIES AND CAPITAL

Current liabilities	$161,615
Capital stock, 3,500 shares issued and outstanding, par value $100.00 per share	350,000
Paid-in surplus	96,250
Retained earnings	203,225
	$811,090

Solution to Problem 5

COMPUTATION OF NET INCOME TO BE USED IN CALCULATION OF INCENTIVE COMPENSATION

Operating income for 1959	$808,341
Provision for deferred incentive compensation	76,000
Total	$884,341
Provision for federal income taxes (52% less $5,500)	454,357
Basis for incentive compensation calculations	$429,984

COMPUTATION OF AVERAGE NUMBER OF SHARES OUTSTANDING

January 1 to May 31	140,000 shares outstanding×5	700,000
June 1 to December 31	130,349 shares outstanding×7	912,443
Total		1,612,443

Average number of shares outstanding: 1,612,443÷12=134,370

AMOUNT AVAILABLE FOR INCENTIVE COMPENSATION COMPUTED ON AN EARNINGS PER SHARE BASIS

Earnings per share ($429,984÷134,370)	$3.20
On the first $2.50 of earnings per share there is available	$ .40
On the next $.70 of earnings per share there is available 70% of $.30 or	.21
Total	$ .61
The total amount available on an earnings per share basis is 134,370×$.61	$81,966

AMOUNT AVAILABLE FOR INCENTIVE COMPENSATION COMPUTED ON THE BASIS OF THE OVER-ALL LIMITATION OF 18% OF ADJUSTED NET INCOME

18% of $429,984=	$77,397

Solution to Problem 6

BOND FUND ENTRIES

11–30–58 (1)

Bonds authorized	$90,000	
Bond fund balance		$90,000
To record bonds authorized		

2–1–59 (2)

Cash	$93,411	
Bonds authorized		$90,000
Premium on bonds		3,411
To record sale of bonds		

2–10–59 (3)

Construction in progress	$ 2,000	
Cash		$ 2,000
To record initial architectural fee		

4–15–59 (4)

Construction in progress	$30,000	
Cash		$27,000
Retained percentage		3,000
To record payment to general contractor		

9–20–59 (6)

Construction in progress	$54,500	
Cash		$49,050
Retained percentage		5,450
To record payment to general contractor		

9–20–59 (6)

Construction in progress	$ 2,000	
Cash		$ 2,000
To record payment on architectural fee		

12–21–59 (7)

Construction in progress	$ 1,070	
Cash		$ 1,070
To record final payment to architect		

12–21–59 (7)

Retained percentage	$ 8,450	
Cash		$ 8,450
To record final payment to contractor		

12–21–59 (7)

Premium on bonds	$ 3,411	
Bond fund balance	90,000	
Construction in progress		$89,570
Cash		3,841
To close bond fund		

GENERAL FUND ENTRIES

2–1–59 (2)

Cash	$ 225	
Accrued interest payable		$ 225
To record accrued interest on bonds sold to Municipal Bond Company		

9–1–59 (5)

Estimated budget surplus	$15,400	
Appropriation—bond retirement		$10,000
Appropriation—bond interest		5,400
To record appropriations from bond retirement on January 1, 1961 and interest on bonds through January 1, 1961		

9–1–59 (5)

Estimated taxes receivable	$15,862	
Allowance for uncollectible taxes		$ 462
Estimated budget surplus		15,400
To record estimated tax		

12–21–59 (7)

Cash	$ 3,841	
Unappropriated surplus		$ 3,841
To record unexpended proceeds from bond issue		

FIXED PROPERTY FUND ENTRIES

12–21–59 (7)

Buildings	$89,570	
Fund balance	430	
Bonds payable		$90,000
To record cost of municipal building and bonded debt		

EXAMINATION IN AUDITING

WALTER B. MEIGS

THE auditing section of the May 1960 Uniform C.P.A. Examination was given May 19,1960 from 8:30 A.M. to 12:00 noon; and included two groups of questions as follows:

	Estimated Minutes	
	Minimum	*Maximum*
Group I (All required):		
No. 1	10	15
No. 2	15	20
No. 3	20	30
No. 4	25	35
No. 5	30	40
Total for Group I	100	140
Group II (Two required)	50	70
Total for examination	150	210

Group I

Answer all questions in this group

Number 1 (estimated time—10 to 15 minutes)

The independent certified public accountant's report, opinion, or certificate as it is variously termed, conventionally includes the following " . . . and accordingly included such tests of the accounting records . . . as we considered necessary in the circumstances."

Required:

Explain how the accountant determines what tests are necessary and the extent to which they are necessary.

Answer 1

The auditor must evaluate the adequacy of internal control in order to determine the nature and extent of the tests to be made of the accounting records. In areas of strong internal control, tests may be held to a minimum; in areas in which internal control is weak, the extent of testing must be increased.

In small companies in which internal control is weak or non-existent, the auditor is forced to verify large numbers of transactions in detail to satisfy himself as to the integrity of the accounts. This type of verification includes the analysis of ledger accounts, and the vouching of invoices, checks, and other documents.

When internal controls are adequate, the character of the auditor's work changes to emphasize reliance upon internal controls. The purpose of the tests he makes is primarily to prove that internal controls are actually working as intended, rather than to verify in detail any considerable portion of the transactions.

The size of a test or sample in a given area requires the exercise of professional judgment by the auditor. Each group of accounts or transactions may be regarded as a separate universe from which a *representative* sample is drawn. The nature, number, and significance of any errors found in a representative sample is indicative of the characteristics of the universe from which it is drawn. Absolute freedom from error is not a necessary or expected quality of financial statements or accounting records. The evidence gathered by the auditor must be sufficient to indicate whether the financial statements present fairly financial condition and operating results.

Number 2 (estimated time—15 to 20 minutes)

Wee Incorporated, a small manufacturing company, has appointed you to make an audit and issue an opinion for the 1959 calendar year. In January 1959, the nine shareholders (all individuals) elected to be taxed as a small business corporation for 1959 and later years under certain sections of the Internal Revenue Code.

In brief, these sections provide that where an election is made the shareholders include in their own income for tax purposes the current taxable income of the corporation, both the part which is distributed and that which is not.

In the course of your 1959 audit, you did not uncover any item which would preclude you from issuing an unqualified report.

Required:

As a result of the election to have the federal income tax on the corporate income paid directly by its stockholders, the following questions are raised:

a. Should footnote disclosure be made of the election by the corporation shareholders? Explain.

b. What information should be given to each stockholder at the end of the year to facilitate the preparation of his tax return? Explain.

c. Explain the type of auditor's report you would issue under these circumstances.

Answer 2

a. The absence of any provision for income tax on the income statement and of any income tax liability on the balance sheet requires disclosure by a footnote.

b. At the end of the year each stockholder should be informed of the taxable income per share (or the net operating loss per share). The total taxable income attributable to each stockholder should also probably be reported to him. If net capital gains have been realized, the data reported to stockholders should distinguish between the net capital gains and the remainder of the taxable income.

Earnings per share are customarily reported annually to shareholders, but this situation calls for a reporting of taxable income per share. The two amounts may differ because of differences between financial accounting practices and income tax regulations. Depreciation, for example, may be computed on an accelerated basis for tax purposes only; certain types of income may be tax-exempt, and certain charges to expense may not be deductible in computing taxable income.

c. Assuming that the footnote suggested in (a) above provides full disclosure of the election, there is no need for qualification of the auditor's report. The standard short-form of unqualified report is appropriate because generally accepted accounting principles have been applied on a basis consistent with that of the prior year.

Number 3 (estimated time—20 to 30 minutes)

You are in the process of "winding up" the field work on XYZ Stove Corporation, a company engaged in the manufacture and sale of kerosene space heating stoves. To date there has been every indication that the financial statements of the client present fairly the position of the company at December 31, 1959, and the results of its operations for the year then ended. The company had total assets at December 31, 1959, of $4,000,000 and a net profit for the year (after deducting federal and state income tax provisions) of $285,000. The principal records of the company are a general ledger, cash receipts record, voucher register, sales register, check register, and general journal. Financial statements are prepared monthly. Your field work will be completed on February 20 and you plan to deliver the opinion statements to the client by March 12.

Required:

a. Prepare a brief statement as to the purpose, and period to be covered in a post-audit review of material transactions.

b. Outline the post-audit review program which you would follow to determine what transactions involving material amounts, if any, have occurred since the balance sheet date.

Answer 3

a. The purpose of a post-audit review of material transactions is to identify and to disclose any events of a nature and significance which would cause the reader of the statements to modify his interpretation of the company's financial condition and/or operating results. Examples of such material events are destruction of the client's plant by fire or flood, and bankruptcy of a major customer from whom large receivables are due.

The period to be covered by the post-audit review generally runs from the balance sheet date to the completion of the field work (February 20) in this case. However, if an event of great significance affecting the client should come to the auditor's attention after completing the field work but prior to issuing the report (February 20 to March 12), he would consider the need for making disclosure. In an audit for a registration statement in connection with the sale of securities, the auditor's review should continue to the effective date of the registration statement.

b. In constructing a post-audit review program, the auditor should bear in mind that his primary responsibility is for the period ended with the balance sheet date, and that his review of subsequent events may reasonably be less intensive.

(1) Review the general journal and other books of original entry up to the end of the field work for any unusual transactions affecting the statements under audit or requiring disclosure for any reason.

(2) Review the minutes of directors' and stockholders' meetings to the close of the field work.

(3) Review the financial statements prepared by the company at January 31 and determine that these monthly statements properly reflect the book balances. Compare these statements with the year-end statements under audit, and investigate any significant variations. Examples of variations warranting investigation include changes in rate of gross profit, changes in proportion of individual expenses to net sales, and changes in relative amounts of balance sheet items.

(4) Inquire of appropriate company officials whether significant changes have occurred in areas such as the following:

(a) Cancellations of sales contracts or booking of important new business.
(b) Assessment of additional income taxes or other significant tax developments.
(c) Bankruptcy of important customers or other indications of important credit losses.
(d) Bank borrowings, restrictive agreements with creditors, pledging of receivables or other assets, renewal of notes payable.
(e) New issuance of securities.
(f) Retroactive pay increases or other important changes in wage contracts.
(g) Renegotiation of government contracts.
(h) Changes in cost of raw materials sufficient to cause inventory losses or gross profit variations.
(j) Trend of sales and earnings.
(k) Important commitments for materials or plant additions.
(l) Dividend policies.
(m) New or pending litigation.
(n) Development of contingent liabilities.
(o) Changes in accounting policies.
(p) Mergers or acquisitions.

A written statement may be obtained from company officials setting forth any material developments of which they have knowledge which would have a significant effect on the audited financial statements.

5. Obtain from the client's legal counsel

a written statement concerning any contingent liability and the status of any current litigation.

Number 4 (estimated time—25 to 35 minutes)

In many companies, labor costs represent a substantial percentage of total dollars expended in any one accounting period. One of the auditor's primary means of verifying payroll transactions is by a detailed payroll test.

You are making an annual examination of the Joplin Company, a medium-sized manufacturing company. You have selected a number of hourly employees for a detailed payroll test. The following worksheet outline has been prepared.

Column Number	*Column Heading*
1	Employee number
2	Employee name
3	Job classification
	Hours worked
4	Straight time
5	Premium time
6	Hourly rate
7	Gross earnings
	Deductions
8	FICA withheld
9	FIT withheld
10	Union dues
11	Hospitalization
12	Amount of check
13	Check and check number
14	Account number charged
15	Description of account

Required:

a. What factors should the auditor consider in selecting his sample of employees to be included in any payroll test?

b. Using the column numbers above as a reference, state the principal way(s) that the information in each column would be verified.

c. In addition to the payroll test, the auditor employs a number of other audit procedures in the verification of payroll transactions. List five additional procedures which may be employed.

Answer 4

a. The primary factor influencing the size of a sample in testing payrolls (or any phase of operations) is the adequacy of internal control. Strong internal controls over payrolls will permit the auditor to hold his testing to a minimum; inadequate internal control may necessitate a complete detailed verification of payroll data. Other specific factors to be considered in selecting the sample include the following:

(1) Number of employees.
(2) Types of payroll: hourly, monthly, piece-rate.
(3) Number of locations, branches, departments.
(4) Random selection to insure that every employee has a chance of inclusion in the sample.
(5) Block sampling to account completely for a selected group of employees.

b.

Column Number	*Methods of Verification*
1, 2, 3, 6	Personnel department records showing name, serial number, job classification, and authorized rate of pay for each employee.
4, 5	Refer to time cards and/or timekeepers' report.
7	Prove extension of hours times rates of pay utilizing data in Column 4, 5, and 6. Also trace earnings to social security reports.
8	Refer to employee earnings records in personnel department. Prove extension of time rate times taxable portion of earnings.
9	Determine exemptions from W-4 cards in personnel department. Compute tax properly withheld by reference to tax withholding table.
10, 11	Refer to withholding authorization cards signed by employees on file in personnel department.
12	Compute independently the amounts of checks by deducting data in Columns 8, 9, 10, and 11 from gross earnings in Column 7.
13	Account for numerical sequence of check numbers. Compare names and amounts on checks with corresponding data on payroll. Determine that checks have been properly endorsed and give special consideration to any questionable second endorsements.
14	Trace payroll amounts to general ledger accounts and consider reasonableness of the distribution of charges.

c. Other audit procedures for payroll transactions:

(1) Compare payrolls with data on social security reports.
(2) On a surprise basis, observe the distribution of a payroll.
(3) Verify the year-end accrual of wages and salaries.
(4) Reconcile payroll bank account at a balance sheet date.
(5) On a test basis, verify the footings of the payroll record and postings from this record.

Number 5 (estimated time—30 to 40 minutes)

You are a senior accountant on the staff of Marin and Matthews, Certified Public Accountants. You are conducting the annual audit of the Never-Slip Corporation for the calendar year 1959.

You are now working on the audit of the accounts receivable and related allowance for bad debts accounts. The study of the internal control has been completed, and the audit program has been completely carried out.

All data and information for the setting up and completion of your working papers are summarized below.

General Ledger

Accounts Receivable

1959					
Dec. 31	Balance	$184,092.42			

Allowance for Bad Debts

1959			*1959*		
July 31	G.J.	$570.00	Jan. 1	Balance	$2,712.50
Oct. 31	G.J.	954.16	Dec. 31	G.J.	2,698.10

Bad Debts

1959			*1959*		
Dec. 31	G.J.	$2,698.10	Aug. 1	C.R.J.	$85.00

General Journal

July 31

Allowance for bad debts	$ 570.00	
Accounts receivable		$ 570.00
To charge off bad accounts (detail omitted)		

October 31

Allowance for bad debts	954.16	
Accounts receivable		954.16
Accounts charged off:		
Baker, J. A.	$110.00	
Dehner & Son	9.75	
Meek, Roger	350.00	
Wagner, James	494.41	
	$954.16	

December 31

Bad debts	$2,698.10	
Allowance for bad debts		$2,698.10
Annual charge based on ½% of net credit sales		

Cash Receipts Journal

On August 1 the $85.00 account of Lester Griem, previously charged off as of July 31, was collected in full. Credit was to bad debts.

Summary of Aging Schedule

The summary of the subsidiary ledger as of December 31, 1959 was totaled as follows:

Under one month	$ 92,715.60
One to three months	58,070.15
Three to six months	29,126.89
Over six months	4,624.10
	$184,536.74

Credit balances:

Dabney Cleaners	$ 16.54—O.K.—Additional billing in January 1960
Britting Cafeteria	72.00—Should have been credited to Britt Motor Co.*
Wehby & Son	384.00—Advance on a sales contract
	$472.54

* Account is in one to three months classification.

General Notes

The general ledger has not been closed.

The allowance for bad debts account is to be adjusted to the required amount determined after all adjustments and corrections have been made.

The customers' ledger is not in agreement with the accounts receivable control. The client instructs the auditor to adjust the control to the subsidiary ledger after any corrections are made.

Required:

a. Prepare audit working papers in reasonable detail for the accounts receivable and allowance for bad debts accounts. Introduce any new accounts or more discriminating classifications if advisable. Make appropriate cross references by numbers in parentheses.

b. Prepare correcting entries with adequate explanations and key to the working papers.

Allowance for Bad Debt Requirements

It is agreed that ½% is adequate for accounts under one month.
Accounts one to three months are expected to require a reserve of 1%.
Accounts three to six months are expected to require a reserve of 2%.
Accounts over six months are analyzed as follows:

Definitely bad	$ 416.52
Doubtful (estimated 50% collectible)	516.80
Apparently good, but slow (estimated 90% collectible)	3,690.78
	$4,624.10

Answer 5

NEVER-SLIP CORPORATION A

Accounts Receivable
December 31, 1959

	Per Books 12/31/59	*Adjustments*		*Final 12/31/59*
		Dr.	*Cr.*	
Accounts Receivable	$184,092.42	(3) $ 16.54 (4) 384.00	(1) $ 10.00 (5) 416.52 (7) 18.22	
	$184,092.42	$ 400.54	$444.74	$184,048.22
Allowance for Bad Debts	$ 3,886.44	(1) $ 10.00 (5) 416.52 (6) 1,291.34	(2) $ 85.00	$ 2,253.58
	$ 3,886.44	$1,717.86	$ 85.00	$ 2,253.58

Answer 5

NEVER-SLIP CORPORATION A-1

Accounts Receivable Subsidiary Ledger

	General Ledger		*Subsidiary Ledger*					
	A.J.E.	*Control*	*Credit Balances*	*Debit Balances*	*Under 1 Month*	*1–3 Months*	*3–6 Months*	*Over 6 Months*
Per general ledger		$184,092.42						
Per subsidiary ledger			$472.54	$184,536.74	$92,715.60	$58,070.15	$29,126.89	$4,624.10
Error in addition in entry of 10/31/59	#1	(10.00)						
Classify advance from customer as liability	#4	384.00	(384.00)					
Correct posting to /Briting Cafe			(72.00)	(72.00)		(72.00)		
		$184,466.42	$ 16.54	$184,464.74	$92,715.60	$57,998.15	$29,126.89	$4,624.10
Reclassify credit balances	#3	16.54						
Write off worthless accounts	#5	(416.52)		416.52				
		$184,066.44		$184,048.22				
Adjust control	#7	(18.22)						
		$184,048.22 A						

NEVER-SLIP CORPORATION A-2

Computation of Requirement For Bad Debts Allowance

Age Classification	*Corrected Balances*	*Percentage for Allowance*	*Amount of Requirement*
Under one month	$ 92,715.60	½%	$ 463.58
1–3 months	57,998.15	1%	579.98
3–6 months	29,126.89	2%	582.54
Over 6 months			
Bad (Write off—AJE #5)	416.52	—	—
Doubtful	516.80	50%	258.40
Remainder	3,690.78	10%	369.08
	$184,464.74		$2,253.58
			A

Adjustment of Allowance For Bad Debts

Per general ledger	$3,886.44
A.J.E. #1	(10.00)
A.J.E. #2	85.00
A.J.E. #5	(416.52)
Total	$3,544.92
Requirement as computed	2,253.58
A.J.E. #6 To adjust valuation account to required level	$1,291.34

Adjusting Journal Entries A-3
December 31, 1950

	Debit	*Credit*
–1–		
Allowance for Bad Debts	10.00	
Accounts Receivable		10.00
To correct addition error in entry of 10/31/59		
–2–		
Bad Debts	85.00	
Allowance for Bad Debts		85.00
Recovery of Lester Griem account was erroneously credited to Bad Debts.		
–3–		
(Not to be entered in books) (Reclassification entry)		
Accounts Receivable	16.54	
Credit Balances in Customers' Accounts		16.54
To reclassify customers' credit balances		
–4–		
Accounts Receivable	384.00	
Advances from Customers		384.00
To classify Wehby & Son advance as a liability.		
–5–		
Allowance for Bad Debts	416.52	
Accounts Receivable		416.52
To write off worthless accounts.		
–6–		
Allowance for Bad Debts	1,291.34	
Bad Debts		1,291.34
To adjust valuation account to required amount.		
–7–		
Miscellaneous Expense	18.22	
Accounts Receivable		18.22
To adjust control account to agree with subsidiary ledger after corrections.		

GROUP II

Estimated time—50 to 70 minutes

Answer only two questions in this group. If three are answered only the first two will be considered.

Number 6

Kent County Grain and Milling Company decided to stimulate the sale of its flour by including a coupon, redeemable for fifty cents (50¢), in every twenty-five and fifty pound sack of flour produced subsequent to October 1, 1959. The company contemplates that 150,000 coupons will be in the hands of customers before completion of the promotional campaign on March 31, 1960.

Upon commencing your year-end work on January 10, 1960, for the calendar year ending December 31, 1959, the controller of Kent County Grain and Milling Company requested that you review the accounting records and the internal accounting control applicable to the flour coupons.

In your review of the accounting records and the system of internal accounting controls, you learned the following:

1. A perpetual record of coupons received, damaged, and used is kept by the production superintendent. Coupons received from the printer are entered from a copy of the receiving ticket, damaged coupons are reported orally by a line foreman, and coupons used are entered from a copy of the production report of sacks of flour packed. A summary of the perpetual record as of December 31, 1959 is as follows:

Coupons received to date	150,000
Coupons damaged and destroyed	(2,000)
Coupons included in 25 lb. sacks of flour	(50,000)
Coupons included in 50 lb. sacks of flour	(25,000)
On hand per record	73,000

2. Unused coupons are kept in a storeroom with stationery and supplies and are readily accessible. No count of coupons within a package is made as they are received from the printers; however, the number of packages times the indicated

amount in each package is recorded on a receiving ticket which is later agreed, in the office, with a copy of the vendor's invoice.

3. Coupons are sometimes damaged by the machinery which mechanically inserts them in the sacks. The production superintendent said that he thought that the line foreman destroyed these coupons. As previously mentioned, the number of damaged coupons are reported to the production superintendent orally each day by the foreman.

4. The line foreman takes a quantity of unused coupons from the storeroom each day based upon scheduled production for that day.

5. Correspondence containing coupons mailed to the company for redemption is first opened in the mail department. The coupons are then sent to the cashier department where they are redeemed in cash out of a fund especially set up for that purpose. The cashier places a fifty-cent piece in a self-addressed envelope, seals the envelope, and returns it to the mail department for ultimate disposition. The cashier stamps the coupon paid with the date of payment.

6. Once each week the cashier's coupon fund is reimbursed in the same manner as any other imprest fund.

7. Complaints from customers not receiving their fifty-cent pieces are sent to the cashier for disposition.

You also learned that a physical inventory of unused coupons was taken on December 31, 1959. It was found that 71,250 coupons were on hand. As of December 31, 1959, flour containing 50,000 coupons had been sold to the company's retail outlets. In addition, by December 31, 1959, 37,500 coupons had been redeemed and paid, and it was estimated that only fifty per cent of the remaining coupons outstanding at that time would be redeemed.

Required:

a. Prepare a memorandum to the controller as to weaknesses in his present control procedures in regard to handling redeemable coupons and your recommendations for improvement.

b. Prepare a journal entry setting up the company's liability for unredeemed coupons as at December 31, 1959. Show your method of computing the liability.

Answer 6

a. Date

To the Controller
Kent County Grain and Milling Company

In accordance with your request, I have reviewed the accounting records and internal accounting controls relating to flour coupons. The low unit value of the coupons makes it imperative that control measures not be costly or cumbersome, such as repeated counting of coupons; on the other hand, the aggregate amount involved is material and various types of testing and sampling are appropriate.

My findings and recommendations based on my review and upon interrogation of company personnel can conveniently be classified under the following headings: (1) acquisition of coupons; (2) custody of coupons; (3) issuance of coupons; and (4) redemption of coupons.

1. Acquisition of coupons.

At present receiving reports covering coupons received from the printer are based on number of packages times indicated quantity per package. Total quantities received are not reconciled with the total of coupons authorized.

To strengthen control over acquisition of coupons, it is recommended that an employee of the accounting department (who does not have access to coupons) be made responsible for reconciling the number of coupons authorized with the quantities ordered per purchase orders to the printer, and also with the quantities received per receiving reports. This employee should also be assigned responsibility for maintaining the perpetual inventory record of coupons as indicated in succeeding paragraphs.

Receiving department personnel should be required to make limited test counts of coupons contained in packages received from the

printer to verify the accuracy of packing sheets.

All coupons should bear an expiration date falling within a reasonable time after the end of the promotional campaign.

2. Custody and issuance of coupons.

The present practice of storing coupons in a readily accessible, unlocked supply room and issuing them to the line foreman without documentary control is unsatisfactory. It is suggested that coupons be kept under lock and issued only upon presentation of serially-numbered requisitions. Damaged coupons should be returned with a serially-numbered report (a copy going to the employee maintaining the perpetual inventory records). The damaged coupons should be destroyed under the supervision of the custodian.

3. Redemption of coupons.

A daily summary of coupons received for redemption should be prepared by the mail department. At weekly intervals these summaries should be reconciled with the redemptions reported by the cashier in requesting reimbursement of the imprest fund for coupons.

The envelopes containing fifty-cent pieces should be mailed directly by the cashier's office rather than being returned as at present to the mail department.

Complaints from customers concerning nonpayment for coupons should be routed to someone other than the cashier, and a weekly or monthly tabulation of such inquiries prepared for review by an appropriate supervisor.

4. Perpetual inventory record of coupons.

The perpetual inventory record now maintained by the production superintendant should be lodged with an accounting department employee not having access to coupons. The documents to support entries in this perpetual record (original authorization, purchase orders, receiving reports, requisitions, and reports on damaged coupons destroyed) have been described in preceding paragraphs.

A physical inventory of coupons on hand should be taken at reasonable intervals and reconciled with the perpetual inventory record. Reports on variances should be prepared for your review.

At the conclusion of the promotional campaign a final physical inventory should be taken, and the coupons destroyed after reconciliation with the perpetual record.

I shall be glad to provide you, if requested, with more detailed recommendations for the implementation of these control procedures.

Sincerely,

b.

Advertising and Promotional Expense	3,125	
Liability for Unredeemed Coupons		3,125

To record liability for unredeemed coupons at December 31, 1959.

Computation of Liability

Coupons placed in 25 pound sacks	50,000
Coupons placed in 50 pound sacks	25,000
Total used per production records	75,000
Deduct coupons in sacks still in inventory	25,000
Coupons in sacks delivered	50,000
Coupons redeemed through December 31, 1959	37,500
Outstanding and subject to redemption	12,500
Estimated percentage to be redeemed	50%
Estimated number to be redeemed	6,250
Redemption value per coupon	50¢
Estimated liability at December 31, 1959*	$ 3,125

* This estimate involves two assumptions: (1) the mailing cost and other expense of redeeming coupons are not sufficiently material to be included in the estimate; and (2) the discrepancy of 1,750 coupons between the production superintendent's records and the physical inventory represents unreported damaged coupons which will not be presented for redemption.

Number 7

Line-Rite Manufacturing Company, Inc. is a moderate-sized company manufacturing equipment for use in laying pipe lines. The company has prospered in the past, gradually expanding to its present size. Recognizing a need to develop new products, if its growth is to continue, the company created an engineering research and development section. During 1959, at a cost of $70,000, this section designed, patented, and successfully tested a new machine which greatly accelerates the laying of small-sized lines.

In order to adequately finance the manufacture, promotion and sale of this new product it has become necessary to expand the company's plant and to enlarge inventories. Required financing to accomplish this has resulted in the company engaging you in April 1959, to examine its financial statements as of September 30, 1959, the end of the current fiscal year. This is the company's initial audit.

In the course of your preliminary audit work you obtain the following information:

1. The nature of the inventory and related manufacturing processes do not lend themselves well to taking a complete physical inventory at year-end or at any other given date. The company has an inventory team which counts all inventory items on a cycle basis throughout the year. Perpetual inventory records, maintained by the accounting department, are adjusted to reflect the quantities on hand as determined by these counts. At year-end an inventory summary is prepared from the perpetual inventory records. The quantities in this summary are subsequently valued in developing the final inventory balances.

2. The company carries a substantial parts inventory which is used to service equipment sold to customers. Certain parts are also used in current production. The company considers any part to be obsolete only if it shows no usage or sales activity for two consecutive years. Parts falling into this category are reserved for fully. A reserve of $10,000 exists at present.

Your tests indicate that obsolescence in inventories might approximate $50,000.

As part of your audit you must deal with each of the foregoing matters.

Required:

a. With respect to inventories define the over-all problem involved in this first audit.

b. Outline a program for testing inventory quantities.

c. Enumerate and discuss the principal problems involved in inventory obsolescence for the company assuming the amount involved was significant with respect to the company's financial position.

Answer 7

a. This is an ***initial*** audit and consequently the determination of the amounts of the ***beginning*** inventories presents a real difficulty. Establishing the fairness of the beginning inventories is essential to the expression of an opinion on the fairness of the income statement.

A second element of the problem is to determine whether the inventory pricing policy is consistent with that of prior years. This step requires investigation of both beginning and ending inventories for the year ended September 30, 1958, to establish consistency of income determination for the fiscal years 1958 and 1959.

A third aspect of the problem is determination of the reasonableness of quantities and valuation of inventories at the balance sheet date and verification of the accuracy of the clerical work in extending and summarizing these inventories.

A fourth phase of the problem (not specifically stated) is that the perpetual inventory records are apparently maintained in physical units but not in dollars, If these perpetual records were in dollars as well as physical quantities, internal control would be stronger through independent operation of a general ledger control account and subsidiary records.

A fifth factor in the overall problem is the absence of any adequate procedures within the company for the recognition of obsolescence of goods in inventory.

b. A program for testing inventory quantities follows:

1. Review the system of internal control over inventories, stressing such factors as written policies for taking of physical inventories and preparation of regular internal reports on quantities and variances.
2. Observe the work of the inventory crews to judge adequacy of the planning and care with which counts are made.
3. Verify on a test basis accuracy of counts made by inventory crews.
4. Select at random a sample of per-

petual inventory cards and make test counts of these items.

5. For the sample of perpetual inventory cards referred to in (4) above, trace entries to supporting documents such as receiving reports and requisitions.
6. Review the procedures followed by the company at year end in preparing the inventory summaries.
7. Verify the inventory summaries at the beginning and end of the year by tracing a representative number of items to the perpetual inventory records.
8. Investigate variances disclosed by physical counts which necessitated significant adjustment of the perpetual records during the year.
9. Verify the overall reasonableness of the beginning and ending inventories by the gross profit method of estimating inventories.

c. The problems involved in inventory obsolescence in this case may be summarized as follows:

1. The company has no adequate program for prompt recognition of obsolete articles. The policy of recognizing as obsolete only those items which have not been used or sold two within years is unsatisfactory because it gives no consideration to the reasonableness of quantities in relation to production schedules or to sales volume. The company might have a twenty-year supply of an item sold only infrequently, but under present policies would not recognize any obsolescence loss.
2. The auditor is not well qualified to estimate obsolescence losses. This process involves not only current rate of usage or sale, but also determination of realization values on quantities not saleable through normal channels. The company should make this determination (which may exceed $50,000), and the auditor should review the reasonableness of the procedures followed.
3. If the company is not willing to make adequate provision for obsolescence losses, the auditor may be forced to qualify his opinion or even to disclaim an opinion.
4. Another problem exists in determining how much of the obsolescence loss is properly deductible from the current year's revenue, and how much is applicable to prior years' operations. When did the obsolescence arise? A charge against retained earnings for a earnings for a portion of the obsolescence loss may be appropriate.
5. Finally, the auditor should aid management in establishing an adequate program for recognizing and minimizing obsolescence. Such a program is highly important to successful operation of the business as well as to development of dependable financial statements.

Number 8

In examining the books of a manufacturing concern, you find on the December 31, 1959 balance sheet, the item, "Cost of patents, $18,780."

Referring to the ledger accounts, you note the following items regarding one patent acquired in 1945:

1955	Legal costs incurred in defending the validity of the patent	$1,500
1957	Legal costs in prosecuting an infringement suit	1,100
1957	Legal costs (additional expense) in the infringement suit	340
1957	Cost of improvements (unpatented) on the patented device	900

There are no credits in the account and no allowance for amortization has been set up on the books for any of the patents.

There are three other patents issued in 1953, 1955, and 1956; all were developed by the staff of the client. The patented articles are presently very marketable, but are estimated to be in demand only for the next few years.

Required:

a. What auditing procedures of all the patents should be included in your work program and what details of patented articles should appear in the permanent file?

b. Discuss the items included in the patent account both from accounting and federal income tax standpoints.

a. Since this, apparently is the initial audit of this client, the audit procedures relating to patents will be more extensive than will be required in repeat engagements. Much of the information gathered should be placed in the permanent file where it will be available for convenient reference in succeeding examinations.

1. Prepare a worksheet for each patent listing the description of the item, date patent granted, and original cost. (The worksheet should be so designed as to permit addition of costs incurred later and to show amortization credits. Worksheet placed in permanent file.)
2. For the three patents developed by the client's staff, the development costs should be verified, with attention given to consistency of method, treatment of overhead, etc.
3. Ascertain from company's legal counsel whether any litigation affecting patents is pending and anticipated outcome.
4. Discuss with officers the necessity of establishing a systematic program of amortization. Include in workpapers a statement as to the lack of amortization in the past, and a description of the policy to be adopted.

b. The legal costs listed in the ledger account for defending the validity of the patent and for prosecuting the infringement suit were properly capitalized. Although this treatment is in accordance with generally accepted accounting principles, the client should be advised that income tax regulations provide for litigation costs in defense of a patent to be treated as expense in the year incurred. Amounts received as damages in such litigation must be included in revenues.

The capitalizing of the improvements which were not patented (and probably did not add to the useful life of the patent) was a questionable step. These outlays should preferably be treated as expense, unless strong evidence exists of benefits to be received in future years and the amounts are considered material.

No amortization has been taken. An adequate amortization policy should be established to write off the full cost of the patents over the legal life or the estimated productive life whichever is shorter. The estimate of useful economic life of the patents should be made by the company and reviewed by the auditor as to its reasonableness.

AMERICAN ACCOUNTING ASSOCIATION

NEWS

EDITOR'S NOTE

This section of THE ACCOUNTING REVIEW is an expansion of the customary Association Notes department and is designed to bring more information about the Association and its activities to the general membership. For the present, it is intended as an experiment. Any thoughts or suggestions you may have or any news items for subsequent issues should be forwarded to R. K. Mautz, 218 David Kinley Hall, University of Illinois, Urbana, Illinois.

AAA FELLOWSHIPS ANNOUNCED

The Committee on Fellowship Program is pleased to announce that six fellowships of $1,000 each have been awarded for the academic year 1960–1961. The purpose of the awards, which were made possible by a grant from Haskins & Sells Foundation, Inc., is to assist teachers of accounting in their doctoral studies.

The recipients and their present affiliations are as follows:

Wells A. Grover—Stott & Maisel, Hayward, California
Dee L. Kleespie—The Ohio State University, Columbus, Ohio
Melvin T. McClure—University of New Hampshire, Durham, New Hampshire
Richard F. Page—University of Illinois, Urbana, Illinois
John G. Pate—University of Georgia, Athens, Georgia
John A. Tracy—University of Wisconsin, Madison, Wisconsin

DISTRIBUTION OF COMMITTEE APPOINTMENTS

President Charles J. Gaa has recently released some interesting statistics respecting AAA committee appointments including an analysis indicating that a broad distribution, both geographically and by size of school, was obtained in making up the 1960 committees.

A total of 227 members serve on the various committees, exclusive of the Executive Committee which is elected by the members in attendance at the annual meeting. Approximately 2.4% of the total AAA membership thus have committee assignments.

Any attempt to classify schools by size or geographically is certain to run into difficulties, but the following schedules do show some interesting comparisons. For obvious reasons, the Committee on Convention Arrangements has been omitted from both the following summaries.

ANALYSIS OF 1960 AAA COMMITTEE MEMBERSHIPS BY SIZE OF SCHOOL OR TYPE OF FIRM

	Number of schools or firms having men on committees	*Number of committee memberships*	*Average number of memberships per school or firm*
Schools			
Large (15,000 and up)	27	69	2.55
Medium (7,500–14,999)	31	59	1.90
Small (below 7,500)	44	54	1.23
Total schools	102	182	1.78
Practicing accountants			
Industry	7	10	1.43
Government	4	5	1.25
Public accounting	12	14	1.17
Total practicing accountants	23	29	1.26
Others			
Economist	1	1	1.00
Foreign members	6	6	1.00
Total other	7	7	1.00
Total appointments	132	218	1.66

ANALYSIS OF 1960 AAA COMMITTEE MEMBERSHIPS BY GEOGRAPHICAL AREAS

	Number of schools and firms having men on committees	*Number of committee memberships*	*Average number of memberships per school or firm*
Southeast	13	28	2.14
Southwest	17	24	1.41
Rocky Mountains (including, among others, Kansas, Nebraska, the Dakotas, Idaho, and Utah)	13	17	1.31
Pacific Coast	13	22	1.69
Midwest	36	70	1.95
East	34	51	1.50
Foreign	6	6	1.00
Total	132	218	1.66

REPORT ON THE FOUR-YEAR MAJOR AVAILABLE

Reprints of the Report of the Committee on the Scope of the Four-Year Accounting Major are available in modest quantities to anyone who may need them. Write either to R. Carson Cox, 1775 South College Road, Columbus 10, Ohio or to Walter G. Kell, College of Business Administration, Syracuse University, Syracuse 10, New York.

MOONITZ TO AICPA

Maurice Moonitz, vice-president of the AAA in 1958, has accepted appointment as Director of Accounting Research of the American Institute of Certified Public Accountants effective July 1, 1960. This position is a new one created specifically to head the research activities of the Accounting Principles Board under the Institute's new research program. In this pioneer position, Professor Moonitz will be in

direct charge of what many believe will be the most important research program in accounting.

ANDREW BARR HONORED

Andrew H. Barr, vice-president of the AAA in 1956 and Chief Accountant for the SEC received the highest award this country can give its civil servants when President Eisenhower recently bestowed on him the President's Gold Medal Award for Distinguished Federal Civil Service.

TRUMBULL TO BE BOOK REVIEW EDITOR

James S. Lanham has resigned as Book Review Editor of THE ACCOUNTING REVIEW. Wendell P. Trumbull, Lehigh University, will assume this position commencing with the October issue.

AICPA ANNOUNCES RESEARCH PROJECTS

The accounting research division of the American Institute of Certified Public Accountants is beginning an investigation of a number of topics. It is expected that the results of the research will be published as "accounting research studies" by the Director of Accounting Research and will form the basis of formal pronouncements by the Accounting Principles Board. Anyone interested in submitting comments, suggestions, or other material for the use of the research staff is invited and urged to do so. Advance notice of the intent to participate in the projects in this way will be appreciated. All correspondence relating to the studies should be addressed to: Mr. Perry Mason, Acting Director of Accounting Research, American Institute of Certified Public Accountants, 270 Madison Avenue, New York 16, N. Y. The projects thus far announced are:

Basic Postulates and Broad Principles of Accounting

The report of the special committee on research program, which was approved by the Council of the American Institute in April 1959, contained the following comments on this project:

> An immediate project of the accounting research staff should be a study of the basic postulates underlying accounting principles generally, and the preparation of a brief statement thereof. . . . Postulates are few in number and are the basic assumptions on which principles rest. They necessarily are derived from the economic and political environment and from the modes of thought and customs of all segments of the business community. The profession, however, should make clear its understanding and interpretation of what they are, to provide a meaningful foundation for the formulation of principles and development of rules or other guides for the application of principles in specific situations. Also, the Institute should encourage cooperative study with other representative groups to determine that its understanding and interpretation of the postulates are valid and to provide a forum which will command sufficient respect to bring about a change in the postulates when any of them become outmoded.
>
> There should be also a study of the broad principles of accounting, and the preparation of a reasonably condensed statement thereof, similar in scope to the statements of the American Accounting Association. The results of these, as adopted by the [Accounting Principles] Board, should serve as the foundation for the entire body of future pronouncements by the Institute on accounting matters, to which each new release should be related.

This project will be under the direction of Professor Maurice Moonitz of the Uni-

versity of California at Berkeley who recently accepted appointment as Director of Accounting Research, American Institute of CPA's.

Accounting for Income Taxes

Particular attention will be paid to the problems of income tax allocation among accounting periods where certain transactions reported on the income tax return are reflected in an earlier or later period on the financial statements. The study will include the treatment of loss years, allocation among sections of the financial statements, the handling of net operating loss carryback and carryforward adjustments, and other related problems.

This project will be under the specific direction of Professor Homer A. Black of Florida State University.

Accounting for Leases

Particular attention will be paid to the problems associated with the increased use of equipment leases and of sale-and-lease-back arrangements, and to the possibility of capitalizing future rental payments for financial statement purposes. The matter will be considered from the standpoints of both the lessee and the lessor.

This project will be under the specific direction of Professor John H. Myers of Northwestern University.

Business Combinations

A pronouncement on this subject was made by the committee on accounting procedure in Accounting Research Bulletin No. 48 and the provisions of this bulletin will be reviewed as a part of the new study.

Particular attention will be paid to the "pooling-of-interests" approach to the problem and a survey will be made of the experience with this type of combination in recent years.

This project will be under the specific direction of Professor Arthur R. Wyatt of the University of Illinois.

Nonprofit Organizations

Attention will be focused upon the accounting problems which are characteristic of such enterprises and an attempt will be made to determine the extent to which accounting principles applicable to business enterprises operated for a profit are appropriate for nonprofit organizations. While the extensive work which has been done in the areas of educational institutions, hospitals, and governmental units will be studied and reviewed, primary attention will be devoted to other organizations such as churches and religious organizations, charitable institutions, health and welfare organizations, professional associations, foundations, labor unions, veterans organizations, cooperatives, and the like. The study will not be concerned with bookkeeping and accounting systems for these groups, but rather with the major accounting problems and general principles which are peculiar to them.

This project will be under the direction of Professor Emerson O. Henke of Baylor University, Waco, Texas.

AMERICAN ACCOUNTING ASSOCIATION

1960 Convention

August 29, 30, and 31

on the beautiful campus of
THE OHIO STATE UNIVERSITY
COLUMBUS, OHIO

PRESIDENT'S INVITATION

It is our expectation that the annual meeting in 1960 will equal the fine conventions held in past years, and our hope is that it may even exceed them. Our technical program includes the names of such well-known and able persons as Maurice Stans, J. S. Seidman, William Werntz, Maurice Lee, Leo Schmidt, Andrew Barr, Weldon Powell, Raymond Dein, Walter MacFarland, Frank P. Smith, Kenneth Tiffany, Herbert Miller, Wilton Anderson, Leo Herbert and Herman Bevis. In addition it includes a large number of other persons who are either already well-known or are building outstanding reputations.

The Arrangements Committee has put forth a great deal of effort to make this convention a pleasant family and social event. Ohio and the surrounding states have many natural attractions which will make your visit to Columbus a rewarding vacation trip.

The Executive Committee cordially invites you to attend the 1960 annual meeting, to benefit from the technical sessions, and to renew your friendships and those of your family. Plan to be at the Columbus meeting!

Sincerely yours,

CHARLES J. GAA, *President*
American Accounting Association

Convention Headquarters–The Ohio Union

AMERICAN ACCOUNTING ASSOCIATION

Preliminary Program for the 1960 Annual Convention

MONDAY, AUGUST 29

9:00- 5:00 Registration
Committee Meetings

5:00 Picnic

TUESDAY, AUGUST 30

9:15-11:45 *Session I*

Presiding: CHARLES E. JOHNSON, Vice-President, Chairman, Joint Committee on Education

Welcome: JAMES R. MCCOY, Dean, College of Commerce and Administration, The Ohio State University

Subject: *Validity and Impact of the Ford and Carnegie Reports on Business and Accounting Education*

Speakers:
1. H. G. NELSON, Ford Motor Company, Detroit
2. DEAN MAURICE LEE, University of North Carolina, President, American Association of Deans of Collegiate Schools of Business.
3. WILLIAM W. WERNTZ, Touche, Ross, Bailey & Smart
4. LEO A. SCHMIDT, University of Michigan, Chairman, American Accounting Association Committee to Study the Ford and Carnegie Reports

12:00- 2:00 Luncheon

Presiding: GLENN A. WELCH, Vice-President

Greetings: NOVICE G. FAWCETT, President, The Ohio State University

Introduction: Speakers' and Guests' Tables

Speaker: J. S. SEIDMAN, President, American Institute of Certified Public Accountants

Subject: ***How the Schools of Business and the CPA Can Help One Another***

2:15- 4:00 *Session II*

Presiding: WALTER G. KELL, Vice-President

Subject: *Accounting Research*

Speakers:
1. ANDREW BARR, Chief Accountant, Securities and Exchange Commission
2. WALTER MACFARLAND, Director of Research, National Association of Accountants
3. WELDON POWELL, Chairman Accounting Principles Board, American Institute of Certified Public Accountants
4. W. JOSEPH LITTLEFIELD, Director of Research, Controllers Institute of America
5. RAYMOND DEIN, Director of Research, American Accounting Association

4:15- 5:15 *Session III*—Round Table Discussion

I. *Subject:* *The Ford and Carnegie Reports*

Chairman: FRANK P. SMITH, Lybrand, Ross Bros. & Montgomery, Members of Committee to study the Ford and Carnegie Reports

Panel: Speakers from Session I

II. *Subject:* *Accounting Research*

Chairman: ROBERT WALDEN, Indiana University, Chairman, Committee on Accounting Theory, American Accounting Association

Panel: Speakers from Session II

WEDNESDAY, AUGUST 31

9:15-11:45 *Session IV*

Presiding: HANS C. TODT, Vice President
Subject: I. *The Future of Accounting*
Speakers:
1. KENNETH TIFFANY, Vice-President, The Burroughs Corporation, Detroit
2. HERMAN BEVIS, Partner, Price, Waterhouse & Co., New York
3. HARVEY G. MEYER, University of Tennessee

Subject: II. *The Federal Budget*
Speaker: MAURICE H. STANS, Director of the Budget

12:00- 2:00 Luncheon-Business Session

Presiding: CHARLES J. GAA, President
Introductions: Speakers and Committee Chairmen
Report of the Secretary Treasurer
Report of the Director of Research
Report of the Editor
Report of the President
Report of Committee Chairmen
Election of Officers

2:00- 3:15 *Session V*—Round Table Discussion

1. *Scope and Content of the Fifth Year of Collegiate Education for Accounting*
   Chairman: HERBERT E. MILLER, University of Michigan, Chairman of Committee on Professional Degree Education in Accounting
   Panel: a. DAVID W. THOMPSON, Peat, Marwick, Mitchell & Co.
   b. WILLIAM CRUM, University of Wichita
   c. CHARLES T. ZLATKOVICH, University of Texas
2. *Recent Developments in Income Tax Legislation and Education*
   Chairman: ROBERT HAUN, University of Kentucky, Chairman, Committee on Income Taxation
   Panel: a. ROBERT MILROY, Indiana University, Member Committee on Income Taxation
   b. ROBERT ROSBE, Arthur Andersen & Co., Chicago
3. *Integration of Managerial Accounting into Traditional Accounting Courses*
   Chairman: WILLIAM E. THOMAS, University of Illinois, Chairman, Committee on Management Accounting
   Panel: a. WILBUR C. HASEMAN, University of Missouri
   b. WILLIAM TUTHILL, University of South Carolina
4. *Television and Accounting Instruction*
   Chairman: WILLIARD E. STONE, University of Pennsylvania, Chairman, Committee on Teaching Methods
   Panel: a. I. E. MCNEILL, University of Houston
   b. JOHN RUSWINCKEL, Michigan State University
5. *Mathematics and Accounting Instruction*
   Chairman: IRVING K. CHRISTIANSEN, John Carroll University, Member, Committee on Courses and Curricula—General
   Panel: a. HAROLD BIERMAN, Cornell University
   b. RICHARD V. MATTESICH, University of California, Berkeley
   c. PETER A. FIRMIN, Tulane University

3:30- 4:45 *Session VI*—Round Table Discussion

1. *Recent Doctoral Dissertations*
   Chairman: SIDNEY DAVIDSON, University of Chicago, Chairman, Research Review Committee
   Panel: Chosen by Research Review Committee from those who have recently completed dissertations: Morton Backer, Gordon B. Davis, T. Edward Hollander, Donald F. Istvan, Rudolph W. Schattke

2. *Business Games and Accounting Instruction*

Chairman: HECTOR ANTON, University of California, Berkeley, Member, Committee on Teaching Methods

Panel:
a. CHARLES W. BASTABLE, Columbia University
b. D. C. EDMONDSON, General Motors Institute, Flint, Michigan

3. *C.P.A. Regulations and Accounting Curricula*

Chairman: HOWARD F. STETTLER, Chairman, Committee on Courses and Curricula—General

Panel:
a. FRED E. HORN, Arthur Young & Co., Member, New York Council on Accountancy
b. WILTON ANDERSON, Director of Education, American Institute of Certified Public Accountants
c. ERNEST H. WEINWURM, DePaul University

4. *Professional Development of Accounting Personnel in Government Service*

Chairman: T. LEROY MARTIN, Northwestern University, Chairman, Committee on Post-degree Continuing Education in Accounting

Panel:
a. H. E. BREEN, General Accounting Office, Washington
b. WILLIAM CAMPFIELD, Army Audit Service, San Francisco

5. *Scope and Content of First Course in Cost Accounting*

Chairman: A. WEYMAN PATRICK, University of Tennessee

Panel:
a. L. J. BENNINGER, University of Florida
b. K. B. BERG, University of Washington

6. *Accounting Developments Abroad*

Chairman: E. J. DEMARIS, University of Illinois

Panel:
a. ROBERT DIXON, University of Michigan (Australia)
b. ARTHUR LORIG, University of Washington (England)
c. WERNER DUENSER, University of Illinois (Germany)
d. CHARLES LAWRENCE, Michigan State University (Brazil)

6:30- 8:30 Banquet

Presiding: CHARLES J. GAA, President

ASSOCIATION NOTES

(EDITOR'S NOTE: In the future please address communications concerning the Association Notes to the editor of THE REVIEW, 218 David Kinley Hall, University of Illinois, Urbana, Illinois.)

KEITH C. AUSTIN is an instructor at the U. of Florida. LARRY J. BENNINGER, U. of Florida, was promoted to professor last fall. . . . GEORGE J. BENSTON, on leave from Georgia State College, has been awarded a fellowship by the Federal Reserve Bank of Chicago for continuation of doctoral work at the U. of Chicago. . . . JAMES E. BROWN has resigned at the U. of Florida. . . . IRVING K. CHRISTIANSEN, John Carroll U., was discussion leader of the panel on introductory accounting at the Ohio Regional Group meeting of the AAA last December. Nine students at John Carroll were given special awards of associate memberships in the AAA for proficiency in accounting.

ARNOLD E. CROTTY has been appointed instructor at the U. of Miami (Fla.). . . . WILLIAM F. CRUM was secretary of the Fifth Annual Petroleum Conference, held in May at the U. of Wichita. . . . E. J. FJELD is retiring this year upon completion of the year as visiting professor at Los Angeles State College of Applied Arts and Sciences. . . . WILLIAM FLEWELLEN served as acting dean of the business school at the U. of Alabama during the spring semester in the absence of Paul Garner. . . . JOE R. FRITZEMEYER will join the faculty of the State U. of Iowa in September. . . . SAMUEL FRUMER has accepted a position on the faculty at Indiana U. . . . S. PAUL GARNER of Alabama spent the spring semester on a State Department tour; his itinerary included Australia, New Zealand, The Philippines, Japan, Hong Kong, Thailand, as well as European countries.

WAYNE F. GIBBS of the College of William and Mary suffered a cerebral hemorrhage in March and has retired from teaching. . . . VICTOR HARRISON, U. of Alabama, spent the early part of the summer at AICPA headquarters in New York City. . . . LEON E. HAY, Indiana, participated in the Fourth Annual Conference on Hospital Accounting, held at the State U. of Iowa. Hay recently acted as chairman of the accounting program for the Midwest Economics Association. . . . CHI-MING HOU, Colgate U., is spending the summer on a research grant by the Center for East Asian Studies at Harvard; he is studying the role of foreign investment in the development of China from 1840 to 1949.

At Indiana University three members of the faculty of the School of Business were honored by Alpha Kappa Psi for twenty-five years of service: D. LYLE DIETERLE, R. MERRILL MIKESELL, and ALVA L. PRICKETT. . . . ROBERT G. JAMES has joined the Planning & Analysis Dept. of Socony Mobil Oil Company in New York City. . . . L. MARTIN JONES was chairman of arrangements for the conference on "The Future for Business in the Central United States," which was held April 9 in conjunction with dedication of the new building for the School of Business at the U. of Kansas. . . . JOSEPH E. LANE, JR. of the U. of Alabama is spending the summer as a consultant with the Alabama Department of Revenue.

JAMES S. LANHAM resigned as head of the Accounting Department at the U. of Florida effective July 1. Lanham is serving as chairman of the Subcommittee on Faculty Recruitment and Advanced Studies of the AICPA Committee on Relations with Universities. . . . B. C. LEMKE was director of the Financial Management Seminar recently held at Michigan State U. . . . JOSEPH MASTERS has been ap-

pointed instructor at the U. of Florida. . . . WALTER B. MEIGS is a member of the present committee on auditing procedure of the AICPA. . . . JANET K. MESSING received the Ph.D. degree from NYU in 1959 and has held the appointment of instructor at Hunter College during the past year. . . . The Fifteenth International University of Miami Tax Conference was held in April at Miami Beach, with the special feature of a weekend at Montego Bay, Jamaica, for those wishing to attend.

Michigan State U. has established a Graduate School of Business Administration. Michigan State has contracted with the United States Air Force for enrollment of twenty officers each year in a program emphasizing controllership and leading to the master's degree. . . . HOWARD S. NOBLE became professor emeritus July 1 after thirty-eight years on the UCLA faculty. He was the founder of the original College of Business Administration and served as dean for twelve years. . . . The U. of Oklahoma, commencing in September, will offer doctoral programs leading to either the Ph.D. in Business Administration or the D.B.A. degree, with accounting as one of the fields of concentration. . . . NICHOLAS L. ONORATO received the doctorate from Clark U. in 1959; he is now assistant professor at Worcester Polytechnic Institute. . . . RICHARD OWENS, formerly at George Washington U., will be visiting professor during the coming year at the Los Angeles State College of Applied Arts and Sciences.

ORVILLE PALMER has been appointed Acting Dean of the College of Business Administration at Marquette U. . . . STANLEY A. PRESSLER of Indiana U. was faculty sponsor of the Seventeenth Annual Institute on Hospital Accounting held July 17–22. . . . JOHN S. QUINN, College of William and Mary, has been elected a director of the Association of University Evening Colleges. . . . HAROLD E. ROYER, formerly with Southwest Missouri State College, has joined the staff of the U. of Miami (Fla.) as an assistant professor. . . . SYLVAN SACK has been appointed instructor in the Eastern College of Commerce and Law; he recently passed the CPA examination. . . . MICHAEL SCHIFF has been designated Chairman of the Accounting, Statistics, and Taxation Departments at NYU's Graduate School of Business Administration.

L. VANN SEAWELL, Indiana U., took part in the Fourth Annual Conference on Hospital Accounting held at the State U. of Iowa. . . . ALBERT J. SIEVERS has been promoted to associate professor at Marquette U. . . . ROBERT R. STERLING has been on leave from the U. of Florida while pursuing work on the doctorate under a Ford Foundation Grant. . . . HOWARD F. STETTLER of U. of Kansas is serving as a director of the Association of CPA Examiners. . . . MICHIO TSUCHIDA, professor of accounting at Aoyama Gakuin University, Tokyo, visited the U. of Florida campus for an extended period last year while studying accounting education in the U. S. . . . ALVIN E. TUOHINO has been promoted to associate professor at Los Angeles State College of Applied Arts and Sciences. . . . PERCY YEARGAN, recently promoted to associate professor at U. of Alabama, passed the CPA examination with the highest score in the state. Yeargan conducted a course in accounting principles last year for credit through the Alabama Educational TV System.

AMERICAN ACCOUNTING ASSOCIATION

REPORT ON EXAMINATION OF ACCOUNTS

For the year ended December 31, 1959

BEYER, BRICKEY & DICKERSON
CERTIFIED PUBLIC ACCOUNTANTS
COLUMBUS, OHIO

REPORT ON EXAMINATION OF ACCOUNTS

January 11, 1960

Executive Committee
American Accounting Association
Columbus, Ohio

We have examined the statement of financial position of the American Accounting Association as of December 31, 1959, and the related statements of income and net worth of the General Fund, Life Membership Fund, and AAA Fellowship Fund for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying statement of financial position and related statements of income and net worth present fairly the financial position of the American Accounting Association at December 31, 1959, and the results of its operations for the year then ended, in conformity with generally accepted principles of accounting applied on a basis consistent with that of the preceding year.

BEYER, BRICKEY & DICKERSON
Certified Public Accountants

Exhibit A
American Accounting Association
STATEMENT OF FINANCIAL POSITION
As at December 31, 1959

Assets	*General Funds*	*Life Membership Fund*	*AAA Fellowship Fund*	*Combined Funds*
Cash on hand and in banks	$39,693.49	$ 9,119.86	$ 485.06	$ 49,298.41
United States Treasury obligations, at cost plus accrued interest (maturity value $23,000)	$ —	$ —	$23,177.28	$ 23,177.28
United States savings bonds				
Maturity value	$33,000.00	$11,000.00	$ —	$ 44,000.00
Less: Discount	6,685.00	2,501.00	—	9,186.00
Redemption value	$26,315.00	$ 8,499.00	$ —	$ 34,814.00
Accounts receivable	$ 601.44	$ 1,610.12	$ —	$ 2,211.56
Less: Allowance for doubtful accounts	77.50	2.00	—	79.50
Accounts receivable, net	$ 523.94	$ 1,608.12	$ —	$ 2,132.06
Office equipment (at nominal value)	$ 1.00	$ —	$ —	$ 1.00
Deposit with Ohio Bureau of Workmen's Compensation	$ 32.00	$ —	$ —	$ 32.00
Total Assets	$66,565.43	$19,226.98	$23,662.34	$109,454.75

Liabilities and Net Worth				
Accounts payable and accrued expense	$ 6,890.10	$ —	$ —	$ 6,890.10
Collections received in advance:				
Members' dues	$28,777.18	$ —	$ —	$ 28,777.18
Associate members' dues	15,827.29	—	—	15,827.29
Subscriptions	5,534.25	—	—	5,534.25
Total	$50,138.72	$ —	$ —	$ 50,138.72
Total Liabilities	$57,028.82	$ —	$ —	$ 57,028.82
Net worth (Exhibit D)	9,536.61	19,226.98	23,662.34	52,425.93
Total Liabilities and Net Worth	$66,565.43	$19,226.98	$23,662.34	$109,454.75

See accompanying Note to Financial Statements.

Exhibit B

American Accounting Association

STATEMENT OF INCOME—GENERAL FUND

For the year ended December 31, 1959

Income		
Members' dues		$46,374.73
Associate members' dues		15,940.29
Subscriptions to THE ACCOUNTING REVIEW		7,794.24
Advertising		5,162.00
Accounting Careers Booklet, Young Eyes on Accounting:		
Contributions received	$ 4,700.00	
Sales	60.00	4,760.00
Interest		876.00
Sales of membership lists, net		223.58
Sales of other publications		2,027.91
Total		$83,158.75
Expense		
Printing and mailing expense:		
THE ACCOUNTING REVIEW	$33,767.30	
Accounting Careers Booklet, Young Eyes on Accounting	8,393.49	
Other publications	4,524.50	$46,685.29
Officers' travel, meetings, and administrative expense:		
Executive committee meetings	$ 3,862.90	
President's expense	2,922.54	
Other officers' expense	412.80	7,198.24
Committee expenses (Schedule 1)		11,280.63
Salaries (Note A)		9,264.77
Office supplies, stationery, and other expense (Note A)		6,462.24
Honoraria		5,900.00
Convention cost (net)		855.32
Provision for doubtful accounts		67.50
Miscellaneous		94.54
Total		$87,808.53
Net loss for the year		$ 4,649.78

See accompanying Note to Financial Statements.

Schedule I

American Accounting Association

STATEMENT OF COMMITTEE EXPENSES—GENERAL FUND

For the year ended December 31, 1959

Membership		$ 3,382.71
Joint Committee on Research		789.81
Accounting Careers		519.99
Fellowship Program		469.85
Joint Committee on Education		449.05
Nominations		409.53
Regional Meetings:		
Southeastern Group	$ 56.73	
Southwestern Group	55.97	
Ohio Group	50.00	162.70
Task Committees on Education:		
Professional Development Program	$ 520.60	
Role of the Undergraduate Accounting Major	623.54	
CPA Examinations	316.37	
Internal Auditing	122.53	
Professional Education	65.57	
Faculty Residency	5.29	1,653.90
Task Committees on Research:		
Accounting Theory	$1,081.67	
Concepts and Standards of Income for Taxation	1,070.69	
Management Accounting	705.14	
Research Review	585.59	3,443.09
Total		$11,280.63

See accompanying Note to Financial Statements.

Exhibit C

American Accounting Association

STATEMENT OF INCOME—LIFE MEMBERSHIP FUND

For the year ended December 31, 1959

Income		
Sales of publications:		
Paton and Littleton Monograph		$ 4,187.08
Price Level Changes and Financial Statements		2,357.41
Littleton Monograph		1,180.30
Economic Accounting		783.80
Statement of Accounting Principles		74.80
Index to THE ACCOUNTING REVIEW		52.00
Other		2.00
Royalties from sales of Readings in Cost Accounting, Budgeting, and Control		556.61
Life membership contributions		2,100.00
Interest		207.00
Miscellaneous		20.05
		$11,521.05
Expense		
Printing and mailing expense:		
Littleton Monograph	$ 680.40	
Price Level Changes and Financial Statements	130.58	
Miscellaneous	56.31	
	$ 867.29	
Salaries, office supplies, stationery, and other expense (Note A)	2,179.18	3,046.47
Net income for the year		$ 8,474.58

See accompanying Note to Financial Statements.

Exhibit D

American Accounting Association

ANALYSIS OF CHANGES IN NET WORTH

For the year ended December 31, 1959

	General Fund	*Life Membership Fund*	*AAA Fellowship Fund*	*Combined Funds*
Net worth, January 1, 1959	$14,186.39	$10,752.40	$25,198.05	$50,136.84
Net income (loss) for the year (Exhibits B and C)	(4,649.78)	8,474.58	—	3,824.80
Return on investment of AAA Fellowship Fund	—	—	796.29	796.29
Fellowship award payments	—	—	(2,332.00)	(2,332.00)
Net worth, December 31, 1959	$ 9,536.61	$19,226.98	$23,662.34	$52,425.93

See accompanying Note to Financial Statements.

American Accounting Association

NOTE TO FINANCIAL STATEMENTS

As at December 31, 1959

A. Salaries, office supplies, stationery, and other expenses of the Association office were apportioned between the General Fund and the Life Membership Fund on the basis of the ratio of the income of each fund to the total income of both funds.

AMERICAN ACCOUNTING ASSOCIATION
COMMITTEES—1960

EXECUTIVE

Charles J. Gaa, *President*	Michigan State University
A. B. Carson, *President-Elect*	University of California, Los Angeles
Charles E. Johnson, *Vice President*	University of Oregon
Walter G. Kell, *Vice President*	Syracuse University
Hans C. Todt, *Vice President*	Bristol Laboratories, Inc.
Glen A. Welsch, *Vice President*	University of Texas
R. Carson Cox, *Secretary-Treasurer*	Ohio State University
R. K. Mautz, *Editor*	University of Illinois
Raymond C. Dein, *Director of Research*	University of Nebraska
Martin L. Black, Jr., *Past President*	Duke University
C. R. Niswonger, *Past President*	Miami University, Ohio
C. A. Moyer, *Past President*	University of Illinois

MEMBERSHIP

General Chairman	James H. Rossell	University of Pittsburgh
Alabama	William C. Flewellen	University of Alabama
Alaska	C. A. Hostetler	C.P.A., Anchorage
Arizona	Rudolph Schattke	Arizona State University
Arkansas	Kermit C. Moss	Arkansas A. & M. College
California (Northern)	Robert T. Sprouse	University of California, Berkeley
California (Southern)	George R. Hawkes	San Fernando State College
Colorado	R. B. McCosh	University of Denver
Connecticut	Lawrence P. Webster	University of Connecticut
Delaware	William Markell	University of Delaware
District of Columbia	H. E. Breen	General Accounting Office
Florida	John E. Champion	Florida State University
Georgia	Catherine E. Miles	Georgia College of Business Administration
Hawaii	Jacob Adler	University of Hawaii
Idaho	Reuben R. Wagner	University of Idaho
Illinois (Chicago)	David Green, Jr	University of Chicago
Illinois (Outstate)	Vernon K. Zimmerman	University of Illinois
Indiana	G. Fred Weber	Butler University
Iowa	William H. Culp	University of Iowa
Kansas	Sherwood W. Newton	University of Kansas
Kentucky	Robert O. Brown	University of Kentucky
Louisiana	Harry J. Smolinski	Louisiana Polytechnic Institute
Maine	Sherman G. Shapiro	C.P.A., Lewiston
Maryland	Frank Higginbotham	C.P.A., University Park
Massachusetts	John W. Anderson	University of Massachusetts
Michigan	Robert Wetnight	Western Michigan University
Minnesota	R. G. Gerryman	University of Minnesota
Mississippi	James D. Holmes	University of Mississippi
Missouri	Roy W. Richards	Saint Louis University
Montana	William H. Hancock	C.P.A., Billings
Nebraska	John D. Leonard	University of Omaha
Nevada	Charles P. Woods	University of Nevada
New Hampshire	Louis O. Foster	Dartmouth College
New Jersey	John R. Gilmour	Rutgers University
New Mexico	Perry T. Mori	University of New Mexico
New York (Metropolitan)	Donald J. Blankenship	City College of the City of New York
New York (Outstate)	John T. Burke	Syracuse University
North Carolina	T. F. Keller	Duke University
North Dakota	Thomas J. Clifford	University of North Dakota
Ohio	Ralph Beckert	Ohio University
Oklahoma	J. R. Vandegrift	Oklahoma A & M
Oregon	Dale Harwood	University of Oregon
Pennsylvania	Samuel R. Sapienza	University of Pennsylvania
Rhode Island	Gustave C. Cote	Providence College
South Carolina	William C. Tuthill	University of South Carolina
South Dakota	Harry E. Olson	University of South Dakota
Tennessee	H. Nelson Lunn	University of Tennessee
Texas	Arthur T. Roberts	Texas Technological College
Utah	Roland W. Funk	University of Utah

Vermont	Paul Wolotkin	University of Vermont
Virginia	Marvin Tummins	University of Virginia
Washington	Fred J. Mueller	University of Washington
West Virginia	Robert E. Witschey	C.P.A., Charleston
Wisconsin	William N. Bergstrom	Marquette University
Wyoming	Keith H. Burdick	University of Wyoming
Australia	William J. Stewart	University of Melbourne
Canada (Eastern)	Gilbert R. Horne	Essex College
Canada (Western)	Brian E. Burke	University of British Columbia
Japan	Kyojiro Someya	Waseda University
Philippine Islands	S. F. Dela Cruz	University of the East
Puerto Rico	Rafael G. Moreno	University of Puerto Rico

NOMINATIONS

C. R. Niswonger, *Chairman*...Miami University, Ohio
Martin L. Black, Jr.....Duke University
C. A. Moyer.....University of Illinois
Howard S. Noble.....University of California, Los Angeles
Herbert F. Taggart.....University of Michigan

ACCOUNTING FELLOWSHIPS

Martin L. Black, *Chairman*.....Duke University
R. Carson Cox.....Ohio State University
C. A. Moyer.....University of Illinois
C. R. Niswonger.....Miami University, Ohio

CONVENTION ARRANGEMENTS—OHIO STATE UNIVERSITY

William B. Jencks, *Chairman*	Mrs. William B. Jencks, *Chairman*
Dallas S. Bolon	Mrs. Dallas S. Bolon
Gerald C. Brown	Mrs. Gerald C. Brown
Lauren F. Brush	Mrs. Lauren F. Brush
James Bulloch	Mrs. James Bulloch
Walter C. Burnham	Mrs. Walter C. Burnham
R. Carson Cox	Mrs. R. Carson Cox
W. E. Dickerson	Mrs. W. E. Dickerson
Horace W. Domigan	Mrs. George W. Eckelberry
George W. Eckelberry	Mrs. Paul E. Fertig
Paul E. Fertig	Mrs. W. J. Fleig
Clayton R. Grimstad	Mrs. Richard M. Gordon
J. B. Heckert	Mrs. Clayton F. Grimstad
Harry C. Lyle	Mrs. J. B. Heckert
Elzy V. McCollough	Mrs. Harry C. Lyle
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BOOK REVIEWS

JAMES S. LANHAM, *Editor*

Accounting

General

Taxes

Accounting

CANADIAN INSTITUTE OF CHARTERED ACCOUNTANTS, *Financial Reporting in Canada* (Toronto: The Canadian Institute of Chartered Accountants, 1959, pp. 119, $5.00).

Financial Reporting in Canada, the Canadian counterpart of *Accounting Trends and Techniques*, summarizes the reporting practices of 300 industrial and mercantile companies for the years 1955, 1956, 1957, and 1958. The format of the book is basically that of the American volume, divided into the following five sections:

Section 1: General
Section 2: The Balance Sheet
Section 3: The Surplus Statements
Section 4: The Statement of Profit and Loss
Section 5: The Auditor's Report

The results of the survey are shown in tabular form outlining a factual report of the types of statements presented, the form and terminology utilized, the treatment accorded numerous items and transactions in the statements, and the form and content of the auditor's report. A percentage comparison accompanies each table. This additional information is helpful in analyzing trends in many instances; however, in a great many cases, the base is constant, thereby greatly reducing the need for such comparisons.

The editor of the book has done a very commendable job of analyzing the trends in Canadian reporting. In addition comparisons are drawn between reporting practices in Canada, Great Britain, and the United States. In many instances the editorial comments trace the historical development of various practices. The position of the Canadian Institute of Chartered Accountants is included in all cases and accounting practices considered ineffective or questionable are dealt with extensively.

The volume lacks the detail of the American counterpart in that no statements nor excerpts from statements are used to illustrate various practices. The reader consequently misses the very cogent remarks which accompany financial statements in the form of notes and which add to the meaning of any form of presentation. Neither has the editor indicated in any way which of the companies included in the survey follow the various procedures. Consequently there is no way for the interested reader to follow up a particular practice, by reference to the published report, to observe the effectiveness of the practice for himself. Some reporting practices are not covered in as much detail as in the American volume; however, this fact does not detract significantly from the work that has been done.

Basically the book is a commentary on current reporting practice supplemented by tables indicating the number and percentage of the companies surveyed which report various items in a particular manner. It is much more than a mere tabulation of procedures employed in reporting financial affairs. It is a survey of Canadian practice including an explanation of the position of the Canadian Institute of Chartered Accountants and in many cases the practice is related to that in other countries. The book can hardly be expected to serve the same purpose for Canadian accountants that *Accounting Trends and Techniques* serves for American practitioners. However, it is a very adequate source of information about many aspects of the Canadian accounting practice. Specifically, the book points out the preferred practice while indicating the state of present practice.

THOMAS F. KELLER
Assistant Professor
of Economics

Duke University

THE CANADIAN INSTITUTE OF CHARTERED ACCOUNTANTS, *The Valuation of Private Business and Professional Practice*, and *The Function of Management* (Toronto: The Canadian Institute of Chartered Accountants, 1959, pp. 45 and 69, price: $2.00).

The two Canadian bulletins listed above published by The Canadian Institute of Chartered Accountants should be interesting to American readers.

"The Function of Management" bulletin was written to make the accountant, businessman and student more conversant with some of the techniques of management. There are chapters on the management organization, the function of management, and the objectives of management, as well as chapters on sales, production, financial planning, personnel administration, management reporting, and various aspects of control.

"The Valuation of Private Business and Professional Practice" bulletin discusses the valuation of and accounting for goodwill, how to value a privately owned business, valuation of a general insurance agency, an accounting practice, and a legal practice. This bulletin should be of interest to teachers, private accountants, and public accountants.

J.S.L.

JOSEPH L. FRASCONA, *C.P.A. Law Review, 2nd Edition* (Homewood: Richard D. Irwin, Inc., 1959, Pages xvi, 942, Student Edition $9.00, Trade Edition $10.80).

Ten years later and with hundreds of successful candidates for the law section of the CPA examination to his credit, Professor Frascona has now rewritten his standard text, retaining the features of organization and aids for the student as he approaches the examination. The frequency chart of branches of the law covered in previous CPA law examination questions focuses the attention of the student on the areas receiving most emphasis in the preceding ten years. Here is an indication of the thinking of the examiners as to their idea of the relative significance of each area subject to examination. Administrative law has emerged as one of the optional areas examined and one which a student may elect to develop in his examination in lieu of one of the several other questions posed among the optional questions.

The author's recommended approach to the method of writing or answering the questions posed is worthy of particular attention. Few students have disciplined themselves in methodology in developing the answers to examination questions. The method presented is unquestionably successful. As a prelude to the CPA examination, and after the usual course presentation, it is desirable to review the student's retention of knowledge. Professor Frascona has a check list preceding each section which is a topical outline of the section headings. By self quizzing, the candidate can determine whether he has a sufficient grasp of each section and even subsection, and, if unable to think easily and comprehensively in the given area, he should then refer to the text and again review his preparation. The reviewer's leading candidate this quarter, in preparation for the examination, spontaneously remarked that his success in overcoming the early lead of an outstanding student was due to his diligent use of the check list. I would like to suggest that when Professor Frascona again publishes a revision that the check lists also include page reference to each section. This would be a distinct aid in ready reference. This reviewer has added the pagination to his copy of the text in the lengthy sections of the book.

This second edition is not just a fresh face with a few changes made to outdate the first edition, but almost a complete rewrite, expanded, with new type and an extensive set of new problems at the end of each section to aid in self quizzing. The problems presented in this new text at the end of each chapter are meaty, demanding close attention and analysis. A Solutions Manual is available to aid the busy instructor in his class presentation. A comprehensive index facilitates a ready reference to the subtitles of the various branches of the law presented.

The text has been reorganized as to some areas. Business Organizations, for instance, treats the traditional Partnership and Corporation topics. Security brings together Property Security and Suretyship. Personal Property treats consecutively Personal Property, Bailments, and Sales.

Students universally recognize the primary importance of Contracts upon which the remaining areas are erected. I know of no other text treatment which does a more concise or better job of presenting contracts to the student. In fact, the treatment may be a bit more extensive than necessary, but it is better to be more than adequate than less so in presenting this fundamental branch of the law.

The exposition is clear and the text well received by students. Where helpful, because of difficulty of subject matter, lucid illustrations are presented to aid the student to grasp readily the principle presented. Analysis and reasoning are the pervading principles, rather than summaries of items to be memorized.

The Uniform Commercial Code is amply referred to in the appropriate sections of the text by number and referencing the sections cited in detail in conjunction with the Uniform Acts. The several Uniform Acts are presented in full, following the appropriate area to which each refers. Therefore, whether the Uniform Commercial Code has been adopted in a particular state, or is about to be adopted, ample provision is made for future use under either code.

CPA examination questions for the preceding ten years are ably analyzed and answered. Students use Professor Frascona's form of analysis as a guide in developing their own style.

The less frequently examined areas are not developed as extensively as the more important ones. I would like to have several sections developed a little more fully, but no doubt the examiners' emphasis justifies the allocation of the amount of text developed.

S. Darden Brown
Associate Professor

University of Washington

D. R. C. Halford, *Differential Costs and Management Decisions* (London: Sir Isaac Pitman & Sons, 1959, pp. ix, 115, 15s.)

The purpose of the book can best be presented in the words of the author, who says in the preface,

> "It appears to be felt that the choice between full costs, standard costs, policy costs, marginal costs, or any other sort of costs, is purely a matter of personal taste—indeed almost a matter of current fashion.
>
> This book sets out and illustrates the reasons which show that for management purposes there is no such choice. It shows the peculiar results which arise from neglecting the implications of the costing system in general use. It argues for a system based on the way costs actually behave, so that managements can obtain undistorted data when faced with economic problems.
>
> It is an argument on the language in which the economic side of business should be conducted. A business cannot be run in the Hottentot language which has no word for a number greater than two; nor can it be run in an accounting language which persistently mistranslates what managements are trying to do."

The book is tightly knit and the argument is developed in a logical fashion. Chapter I, Fundamentals, is very short and is used to establish the issues. In Chapter II, Development of the Theory: Marginal Costs, attention is focused upon the classification of costs; the relationship between volume and variable cost, total cost, and full unit cost; the failure of unit full cost as a guide to profit; and a few short examples to contrast the difference between using the unit full cost data and marginal cost data for arriving at management decisions. Chapter III, The General Theory: Differential Costs, is an extension of the analysis made in the previous chapter. The term "Differential cost" is introduced and a thorough examination is made of the meaning of "activity," the constancy (or lack of it) of unit variable costs, and the behavior of "fixed" costs. A classification of costs with respect to their behavior in response to various degrees of change in activity is set up. Chapter IV, Practical Applications, illustrates the application of the theory to a number of management problems including the purchase of new

machinery for a new production method, automation, a change in heat treatment methods, make or buy a single component, and make or buy one or more components under various conditions and limitations.

In the first chapter, the author considers briefly, and rejects, the idea of "the true" cost. The "search for 'the' cost is not an exercise of much relevance to practical everyday affairs." He then establishes the premise that the purpose for which costs are developed is to guide actions of management and, based upon this premise, he points out two consequences. One is that usually decisions will involve changes in the level of activity. The second is that since the "guidance is economic in nature, it must follow proved economic principles."

Marginal cost theory is presented in the second chapter. Costs are classified as variable, semi-variable, and fixed. Some attention is given to the time period. Comparisons are then made at various rates of production between the variable cost, the total cost (called group cost), and the "full cost" (i.e. the unit cost on a full absorption basis at normal capacity multiplied by the number of units on the scale). These comparisons are extended to break-even analysis and the idea of economic profit (the difference between selling price and marginal cost) is introduced. Continuing the comparisons in a case involving the sale of two products, the author concludes, "Prices, then, should be fixed by suitable margins above the variable cost so that all fixed overheads and the desired profit are recovered from the total of all margins contributed by all products."

The analysis is continued in Chapter III where the consideration of more complex situations indicate the desirability of substituting differential cost for variable cost. Variable costs are examined and are found to be not directly variable. Fixed costs are shown to be somewhat flexible and the reaction of these costs is contrasted when the volume is increasing or decreasing. As a consequence, the total cost curve increases with jumps and steps. The relatively flat segments following the increases are called "pauses." Activity is usually assumed to be homogeneous (e.g. direct labor hours) but the argument runs that this is in error when heterogeneous products are made. Because of the large steps in costs following the pauses and the economic minimum rate for an entirely new product, the author alters the definition of marginal cost to "The marginal cost of a change in activity is the additional cost which that change entails." To avoid confusion in terminology, the author calls it "differential cost." He recognizes that two classes of costs, variable and fixed, are inadequate and proceeds to set up a more extensive classification of costs with respect to their change in amount with small, moderate, large, and very large changes in activity.

Conclusions to the development of the theory in Chapters II and III are that the full absorption unit cost technique is of no use to management in decision making. Where there are sizeable changes in the level of activity or where there is to be a change in the *type* of activity, differential costs must be used. Marginal costs may be used in certain restricted situations, but, since marginal costs are a simpler case of differential costs, the following of the differential cost approach will cover all cases.

Some practical applications of the theory are made in the last chapter. Some of the examples are:

1. The purchase of equipment to improve a technique.
2. A change in process by linking machines with transfer equipment.
3. The replacement of a machine with consequent saving in labor.
4. Make or buy.
5. Petrol vs. diesel trucks.
6. Incentive plans for drivers.
7. Overloading of trucks.

The author introduces the "return per key factor" idea, which is not a part of the differential cost concept, but is necessary to complete his examples. The most common assumption is that capital is the factor which is limited and, thus, the return on investment is commonly the final figure in studies of problems of the above type. However, in some cases the limitation of other key factors may override the importance of the capital factor. Examples assuming limitations in floor space and in draftmen's hours are given.

On the final page the author presents an outline scheme for organizing the accounting system so that differential cost data can be obtained. It is evident that Mr. Halford could write a very informative chapter on this subject and the reviewer regrets that he did not do so. However, accounting systems may be considered somewhat extraneous to the mainstream of the book. Mr. Halford states his thesis and supports it in a most logical and concise manner.

William E. Thomas
Professor of Accountancy
University of Illinois

George R. Husband, *Accounting: Administrative/Financial* (Philadelphia: Chilton Company, 1960, pp. ix, 499, Price $7.50)

This book was written "for use in situations in which advanced or mature students need to secure an overview of accounting, its nature, and its problems.... The material presented is designed to be covered in one semester."

Ignoring the concluding chapter, "General Overtones" (which might have been omitted, as the content is largely covered in Chapter 1), the book consists of fifteen chapters totaling 475 pages, including about 108 pages of questions and problems.

As anyone familiar with the quality of Professor Husband's earlier writing would expect, this book has a lot of meat in it and may be compared favorably with any of the existing one-semester texts. The author's ability to think clearly and express himself well is in evidence in every chapter. A commendable feature of Chapter 1 is the discussion of "assumptions underlying the accounting process" and the summary of "ground rules" on page 13. Among many other specific points which deserve favorable comment are recognition that invested assets are recorded at estimated value rather

than cost (page 9), treatment of "estimated uncollectible sales" as a revenue adjustment (page 44), avoidance of use of the term "capital surplus" (page 80 and elsewhere), substitution of "gross margin" for the indefensible but common caption "gross profit" (page 129), the general position taken with respect to amortization of goodwill (page 369), and sound recommendations as to the nature and disposition of bond "flotation" costs (page 373).

Particularly to be commended are the frequent references to the measurement problems resulting from the changing value of the dollar, the accountant's yardstick, and the inclusion of an entire chapter (#6) devoted to this subject. It was in this area that Professor Husband wrote his doctoral dissertation, many years ago, and this book reflects his continuing interest in financial statements expressed in the common denominator of the current dollar.

On the other hand I find this book, over-all, somewhat disappointing. From my standpoint it contains quite a number of terms and accepted or recommended treatments that range from the questionable to the unsound. Early in the book (page 34), for example, we find the sweeping statement that "the cost of fuel is transformed from an asset status to an expense status as the fuel is burned" (and other similar statements) with no suggestion of the possibility that fuel cost may be transferable to inventory or other asset accounts under some circumstances. The author closes "interest expense" and "interest earned" to "net income" account (page 48), apparently on the ground that these are "nonoperating" items, neglecting entirely the point that interest on borrowed capital is a contractual distribution of income as well as the fact that it doesn't make much sense to refer to regular interest charges (or credits) as "nonoperating." Much more serious is the very flabby discussion of earning power (pages 173–174), and the use of the same denominator—net income to the proprietary equity—in measuring both the proprietary earning rate and the rate earned on total assets employed. To me this is nothing short of downright error.

Among other weak spots I can't forebear mentioning are an unsatisfactory discussion of the funds statement (see, for example, partial acceptance of the idea that depreciation is a source of funds, page 223, and that amortization of bond premium is revenue, pages 230–231), use of "consolidated goodwill" as a balancing element in the discussion of consolidated statements (after pointing out some of the objections to this practice), failure to indicate that the so-called "stock dividend" is nothing but a form of split (pages 302–304), failure to criticize the fused-transaction treatment of asset retirements and acquisitions prescribed for tax purposes in the case of exchanges (page 327), and lack of any discussion of the problem of inventoriable versus noninventoriable costs (Chapter 11). In connection with this last comment it may be noted that the author appears to be unduly preoccupied with merchandising operations in the discussion of inventory problems and in other connections (although Chapters 13 and 14 are devoted to manufacturing accounting).

On the whole Professor Husband organized his material well, but in the case of Chapter 5, "The Balance Sheet and Its Analysis," we find arbitrarily thrown in a discussion of the work sheet, and this chapter also includes, rather inappropriately in view of the title, consideration of interstatement relationships.

Professor Husband was one of my outstanding students, a friend of long standing, and I yield to no one when it comes to the matter of admiration for his conspicuous talents as a teacher and writer. As a result of this background it may be that my expectations were unreasonably high when I undertook to review his last work. It's a good book, but not without faults.

W. A. Paton
Professor Emeritus of Accounting
and of Economics
University of Michigan

W. B. Jencks, *Auditing Principles* (New York: McGraw-Hill Book Company, Inc., 1960, pp. 526, Price $8.50.

"We have examined the balance sheet of the X Company as of December 31, 19— and the related statement(s) of income and retained income for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion the accompanying balance sheet and statement(s) of income and retained income present fairly the financial position of the X company at December 21, 19— and the results of its operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year."

When the above frequently observed report is signed, dated, and addressed it is indeed much coveted by business, large and small. Great reliance is placed in the report by third parties, creditors, investors, and the public. Confidence is based on the validity of the audit procedures and the sound judgment exercised in the determination of the data.

The accounting profession well recognizes the importance of the statement and the American Institute of Certified Public Accountants makes reference to the grave responsibility in its *Rules of Professional Conduct*, Rule 5.

Great stores of acquired information combined with experience creating even greater skill are required by the auditor in his professional career. Clearly, accurately presented texts aid greatly in the development of this man. When the author combines experience as a practitioner and as a teacher, a genuine contribution should be made to the literature most helpful to the development of the profession. The latest contribution, *Auditing Principles* by W. B. Jencks, Professor of Accounting at The Ohio State University, adequately meets the needs of all students of auditing. The soundness of the exposition is found in the accurate integration of the AICPA Auditing Procedure Committee bulletins.

Twenty chapters and an accurate, helpful index fill the 526 pages of this text. One of the very strong char-

acteristics of the book is its simplicity, clarity, and logical presentation. The first chapter, "The Auditor's Function," stimulates and motivates the reader. The section which presents the "History of the Public Accounting Profession" is told in an interesting manner. Unfortuntely, statistics have a way of lagging in freshness so that in this section we are given the numbers of persons engaged in all phases of public accounting work to the year 1951. But this is a minor objection for we find the chapter excellent in developing the three standards, namely, (1) general standards, (2) standards of field work, and (3) standards of reporting. The distinction between standards and procedures is well made.

As we proceed, we find the second chapter titled, "The Audit Program and Audit Working Papers." It is refreshing to find this direct approach to the problem with which we are chiefly concerned. There is lacking much confusing detail frequently found in some presentations. Auditing practice is emphasized. Since basic auditing principles apply equally to internal and external auditing, needless repetition has been eliminated.

Following in traditional balance sheet sequence are the chapters on: Cash; Accounts Receivable, Sales, and Bad Debts; Notes Receivable and Related Income; Inventories and Cost of Goods Sold; Prepaid Expenses; Investments; Tangible Fixed Assets and Depreciation; Intangible Fixed Assets and Deferred Charges; Notes Payable, Accounts Payable and Other Current Liabilities; and Proprietorship Accounts. There is good integration of such income and expense accounts as are related to these balance sheet accounts. The summary found at the close of each chapter should serve the student well in reviewing his procedures. Needless repetition of basic accounting theory is avoided since it is assumed that the student now studying the auditing text is well prepared to proceed in the development of his judgment in applying the basic principles. Each chapter begins with emphasis on the purpose underlying the procedures involved so that the student may apply the proper techniques to given situations.

The final chapters on, "Completing the Audit; the Financial Statements; The Auditor's Report (Short Form) and the Auditor's Report (Long Form)" are consistent in clarity of presentation. Again, the student is not confused by needless detail but is presented with clear instructions which are aided by exhibits which have general acceptance.

Questions and problems at the close of the chapters are adequate and stimulating. It is even the hope of the teacher that these may be supplemented annually and coordinated with the questions given for the CPA examinations.

It is hoped that a practice case may be written to complement and supplement *Auditing Principles*—Jencks.

It is satisfying to find an auditing text that has been so clearly presented and this may be due at least in part, to the fine test the material has been given by the author in his classes and in those of his colleagues.

RALPH F. BECKERT
Professor of Accounting and
Chairman of Department
Ohio University, Athens

LEONARD E. MORRISSEY, *The Many Sides of Depreciation* (Hanover: The Amos Tuck School of Business Administration, Dartmouth College, 1960, pp. 24

Tuck Bulletin 23 is an analysis of the many different aspects of depreciation accounting. The author has attempted to clarify the issues and suggests how business financial reports may be better reconciled with tax accounting. Since accounting for depreciation has proved so controversal in the postwar period this timely bulletin should be of interest to those concerned with the problems of depreciation.

J.S.L.

HOMER ST. CLAIR PACE AND EDWARD J. KOESTLER, *Basic Accounting, Vol. I and II* (New York: Pace and Pace, 1959, 375 pp., Vol. I. and 401 pp., Vol. II, Price $6.75 each).

This is a revision of Pace accounting texts which have been known in the accounting profession for more than half a century. It is an example of the traditional approach to the teaching of the subject. After an introductory chapter, bookkeeping procedures are presented at length in ten chapters. Chapters on Statement Preparation, Adjustment of Cash Basis Records, Termination of Business, Depreciation, and Accounting Principles and Procedures complete the first volume which is intended for the first semester. An appendix contains one hundred and fifteen pages of questions and problems.

Volume II of the work is intended for the second semester. It contains a chapter on each of the following subjects: Working Trial Balance Sheet, Work Paper Closing of the Books, Development of Cash Records, Development of Purchase and Sales Records, the Voucher System, Development of Miscellaneous Records of Original Entry, Ledger Development, and Mechanical Aids. These chapters are followed by four chapters on Partnerships, and chapters on each of the following subjects: Corporation Accounts, Manufacturing Costs, Statement Analyses, Statement of Sources and Application of Funds, and Professional and Managerial Aspects of Accountancy. An appendix contains one hundred twenty-two pages of questions and problems. Each volume is accompanied by a teaching outline.

The distinguishing feature of the books appears to be detailed presentation of techniques supplemented by illustrations.

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R. KEITH YORSTON, E. BRYAN SMYTH, AND S. R. BROWN, *Advanced Accounting*, 4th edition, in two volumes (Sydney, The Law Book Company of Australasia Pty, Ltd., 1959, Vol. I, pp. xi, 540, Vol. II, pp. vii, 608).

The content and nature of *Advanced Accounting* should be much better known to Americans than is likely to be the case since the two volumes incorporate so much more than is traditionally found in our accounting textbooks. The subject matter ranges from the

routine material of most texts through much of the content usually reserved for a text on corporation finance and on well into the field of business law. Mechanized accounting, insurance, and a whole array of cognate subjects are also treated fairly intensively.

Such extensive coverage reflects, first, the fact that in Australian universities the Faculties of Commerce have appeared to resist strongly the proliferation of business courses; second, accounting curricula there are designed more specifically to meet the examination and entrance requirements of the two professional accounting organizations and in these it is assumed that the accountant will undertake responsibilities of much broader nature than those assumed by the accountant-specialist in the United States. Should the current American vogue of blending accounting and statistics in a single course offering gain more acceptance and, logically, take on relevant segments of corporation finance and even business law, we may find ourselves discarding traditional texts and turning toward the Australian style. Certainly this may be preferred in comparison with the delegation of the allied subject matters to teachers whose knowledge of accounting is so often skimpy and of bad quality.

From the standpoint of the American reviewer an Australian textbook is of interest as a reflector of the state of the Australian system of business education and the kinds of problems with which they are concerned. For example, one finds in this text somewhat more attention paid to the subjects of liquidation, receivership, insolvency and bankruptcy, and relatively less attention to the managerials aspects of accounting. It is assumed, of course, that there is no causal relationship in this allocation of emphasis!

The writers deserve the heartiest commendation for their product. In addition to the breadth of coverage, the books are unusual in their attention to detail and their presentation of all points of view where theoretical problems are encountered. Lavish use of illustrative examples, quotations from legal statutes, and illustrations from published statements serve to provide a most comprehensive course for the prospective accountant.

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General

JAMES WASHINGTON BELL AND WALTER EARL SPAHR, editors, *A Proper Monetary and Banking System for the United States* (New York: The Ronald Press Company, 1960, pp. viii, 239 with index, Price $6.00).

The return to a gold-coin monetary standard such as existed in the United States before 1933, and the prevention of further monetization of the federal debt, especially by the Federal Reserve System, are the principal changes recommended in this critical study of our present money and banking system and its operation. The volume, authorized by the Executive Committee of the Economists' National Committee on Monetary Policy, was written by nine economists who, with a few exceptions, agree in their criticisms and recommendations. Their analysis covers the monetary (but not the fiscal) activities of the federal government and the organization and powers of the Federal Reserve System and its relationships with the government, commercial banks and other financial institutions both domestic, foreign and international.

The recommendation of a return to a gold-coin standard is embodied in a suggested bill to be adopted by the Congress. The principal changes in the existing situation would be that: (1) gold could be freely coined in $10 and larger denominations at the present rate of $35 per fine ounce; (2) all metallic and paper money would be readily redeemable by any person in gold coin or bullion; and (3) any existing authority to change the weight of the dollar or to interfere with unrestricted redeemability of our money in gold would be terminated. Supplementary legislation should repeal laws authorizing United States notes and requiring the purchase of silver, but silver dollars and certificates would be retained in our currency system, presumably because it is politically and economically impractical to eliminate these nonessential kinds of money.

The principal argument for the re-establishment of a gold-coin standard with its unrestricted convertibility of money into gold coin, to replace the present international gold bullion standard, seems to be that it would "make impossible a disastrous rise in the price level." However, this aim could presumably be accomplished by ending the authority to change the weight of the dollar and to restrict redeemability of money in gold bullion. If serious domestic inflation should threaten, it is the flow of gold abroad rather than internal redemption that would reduce reserves and so curtail the money supply and the rise of the price level. It is the present authority to raise the price of gold (reduce the weight of the dollar) and thereby permit further increases in the money supply, rather than the lack of domestic convertibility, that poses the threat of serious inflation.

No significant changes in the relationship of the Federal Reserve System to commercial banks and other financial institutions are suggested. Neither compulsory membership of all commercial banks in the Federal Reserve nor legislation requiring all commercial banks to operate under a national bank charter are recommended. All commercial banks would be required to join the Federal Reserve Clearing and Collection System, and the counting of "float," as well as currency and coin, as part of a member bank's legal reserve would not be permitted. A reduction in the number of Federal Reserve districts; changes in the method of selecting the Board of Governors; and abolishment of the Federal Advisory Council and the Federal Open Market Committee are suggested as improvements, but not radical changes, in the structure of the Federal Reserve System.

The major change recommended in our banking system would be legislation to prevent monetization of the federal debt by the Federal Reserve Banks (except in case of war) through issue of Federal Reserve notes with government securities as collateral and through purchase of, or loans against, such securities by the Reserve Banks. Monetization of federal debt is almost always inflationary, it is claimed. While this may be true of direct purchases from the Treasury, it is not so clear in Reserve transactions with banks and others, except in wartime. The Reserve Banks merely "reservitize" government debt whereas it is the commercial banks who "monetize" these securities by creating demand deposits, or money. In the past two years, the increase in the Reserve Banks' holdings of federal securities has merely offset their loss of gold, leaving member banks with unchanged reserves, and hence no ability to monetize either government or private debt as a result of the Reserve Banks' "reservitization." In fact, your reviewer finds the discussion and recommendations concerning monetization the most unsatisfactory portion of the volume. The author discussing this subject at length recommends four different "practicable first step" limitations on Federal Reserve holdings of government securities (at present about $25 billion): about $11 billion; $20 billion; no further issue of notes or creation of deposits against government debt; and a limit $1 billion higher than present holdings. The last limitation appears to be the only practicable one. An eventual limitation suggested for both Reserve *and member banks* is 10% of earning assets! (At present, federal debt constitutes 97% and 30% of those banks' earning assets.)

Closely connected with the condemnation of banks' holding of government securities is the urging of the authors that the Federal Reserve and commercial banks be exhorted and induced to restrict their loans primarily to the short-term, self-liquidating category. Only thus can the soundness and liquidity of the commercial banking system be preserved.

Continued independence of the Reserve System from Treasury control is rightly advocated. "There is no valid question as to whether the Federal Reserve authorities possess the proper instruments and the power to maintain a sound credit policy based upon the correct principles set forth earlier—if they are permitted to do so."

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B. CONWAY, J. GIBBONS, AND D. E. WATTS, *Business Experience with Electronic Computers* (New York: Controllers Institute Research Foundation Inc., 1959, pp. 191, price $5.00).

This research study was published "in order to present a synthesis of what has been learned from electronic data processing installations." It reflects combined knowledge of the members of the electronics staff of a major firm of certified public accountants, and the contribution of experience from seventeen large industrial concerns covering a wide range of business activity.

A large portion of the book is devoted to the decision to acquire electronic machines and the implementation necessary to put these decisions into action. One hundred twenty pages are devoted to the first three sections:

"What Has Been Learned About Making the Decision"

"What Has Been Learned About Preparing for and Introducing Electronic Equipment: Company Education and the Programming Group"

"What Has Been Learned About Preparing for and Introducing Electronic Equipment: Development of the Applications and Conversion from Prior Methods"

The coverage of the machine operations was less exhaustive. Forty-one pages were used to cover the final three sections:

"What Has Been Learned About Operating Electronic Equipment"

"What Has Been Learned About Relations with the Manufacturers"

"Some Unresolved Matters and Some Thoughts on the Next Five Years"

Logically, the emphasis was placed on "first steps" because the book was directed toward ". . . those who have been assigned responsibility for making the initial decisions and for the planning, supervision, control and ultimate success of the electronics program itself."

There is a comprehensive discussion of the study team's review of the firm's needs and the determination of the computer requirements. It is emphasized that their decision will furnish a sound basis for many of the actions required in developing applications, installing equipment, and going into operation if a computer is to be acquired. The report avoids the presentation of the technical characteristics of specific machines.

Education procedures are presented which will appropriately explain the electronics program to those people in the company whose understanding and cooperation are essential.

Students will find this study a valuable source of operational procedures. They will be especially interested in the suggested educational background for careers in EDP. A plea is made for a broadly educated man. Computer ability, knowledge of business (including accounting if the application is in this area), and ability in systems and procedures are indicated to be important.

The authors did not exclude areas in which there is not universal agreement, but rather described alternatives—often presenting a strong preference for a form of action which admittedly is not authoritatively final.

The study should be a valuable reference for those with operating responsibilities in the area and for students and others who want a general review of the recent developments.

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PIERSON, FRANK C., AND OTHERS. *The Education of American Businessmen* (New York: McGraw-Hill Book Company, Inc., 1959, pp. xx, 740, Price $7.50.)

There is a discernable trend in professional schools to reduce the number of educational programs that have a narrow vocational orientation and to expand the number of programs that have a broad analytical orientation. This tendency is receiving critical attention in the better schools that offer degrees in engineering, medicine, and business administration, for example. Pierson's study emphasizes the need for more schools to adopt this revised approach to business education.

A study of three corporations by Lewis B. Ward, reported in Chapter 6, revealed that while graduates in business administration achieve beginning salaries at least as high as employees with other college degrees, their salaries soon lag behind. Moreover, when asked whether their college training or their job experience was more helpful in getting ahead in business, managers who had received business educations attached primary importance to their college work less frequently than did employees with other majors.

However, the relatively unfavorable results of business administration graduates may be due in part to the individuals involved as well as to the quality of their college educations. Pierson found that aptitude and intelligence tests indicate that students of business administration are among the least promising academic groups.

The relatively low quality of students majoring in business can be attributed to some extent to low entrance requirements. But there also is the possibility that poorer students, rather than the most promising students, are attracted to business administration because the courses are easier and less challenging than alternative courses of study.

Thus there are two strong arguments for revising business curricula; namely, to attract better students and to achieve more effective development of students' potentials. Pierson maintains that the major failings of most business education programs at the present are an outgrowth of misguided attempts to prepare students for specialized careers in business. In their efforts to be practical these educational programs have failed to provide leadership in developing expanded knowledge and new approaches to problems of business policies.

Pierson argues for a better balance between career preparation and general scientific methods and knowledge. Current emphasis on specific subject matter skills, practices, and techniques results in programs that are basically vocational. Such programs emphasize information that is not generally applicable in the process of formulating and implementing business decisions, and the information is subject to a high rate of obsolescence.

Greater emphasis should be placed on developing the ability of students to apply analytical methods, major principles, and general knowledge to a wide range of problems in varying contexts and at different levels in a business organization. Programs of business education should seek to develop the qualities of integrity, vigor, resourcefulness, imaginative reasoning, and balanced judgment.

In the main, two basic revisions are needed in business education programs. First, the articulation of courses and sections included in the educational programs must be improved. Emphasis on interrelationships between liberal arts foundations, business core subjects, business concentrations, and elective areas must replace the present isolation of these areas. The overall program must unify the students' study of these various fields.

A complex administrative problem is involved in obtaining the articulation of liberal arts courses that is needed. On the one hand, business faculties must recognize the dependence of sound business education on the contributions of scientists and humanists. On the other hand, liberal arts faculties must accept the responsibility of offering courses for non-majors that recognize some of the needs of business students. Liberal arts courses will have little relevance to education for business if they are taught by faculties who are guilty of excessive specialism and whose main interest is in training students to undertake the same kind of highly specialized research that made the professors experts in small sectors of their esoteric areas.

Secondly, departmental requirements and course offerings must be reduced. Pierson argues that no more than forty-five or fifty per cent of a student's time should be devoted to courses in business and economics. Yet over seventy per cent of the Schools of Business Administration now require students to allocate over sixty per cent of their time to such courses. Familiarity with mathematical and scientific concepts and tools, awareness of status systems, insight into conflict relationships, improved communications skills, and consideration of human-social values are essential to provide a foundation for decision making. Courses in the humanities, natural sciences, and social sciences must be made an integral part of business education programs. In order to allow time for such study, the number of required business courses must be reduced.

There has been excessive proliferation of courses in business administration as a result of faculty and administrative ambition, the desire of employer groups to achieve academic recognition, and narrow student motivation and objectives. Faculties, students, and employers have exerted their influence to expand business education programs to include lengthy sequences of courses in the limited areas of business studies in which they have had a special interest. By expanding curricular requirements it then has been possible to insist that students devote enough time to the courses to justify the creation of an elaborate departmental structure.

Pierson does not argue that students should be prohibited from following their interests in an intensive study of some area to the limits of their abilities, nor that faculties should be prohibited from teaching courses that explore the frontiers of a specialized area. He does maintain, however, that such high level specialization should be achieved by research activities and advanced seminars rather than by the proliferation of prerequisites and course requirements.

In order to strengthen and improve business courses and to provide time for other necessary study, Pierson suggests that Schools of Business Administration offer no more than six or seven subjects for specialization and that no more than four courses be required for

specialization. Accounting is an exception, since five required courses are suggested.

To the argument that such a reduced program would not prepare students to obtain jobs in fields such as advertising, banking, foreign trade, insurance, retailing, real estate, or transportation, Pierson answers that most employers in these fields do not seek students who have extensive specializations. Moreover, he suggests the continuation of one or two courses in such areas provided they are put on a demanding analytical level.

Pierson does not suggest that all Schools of Business should have identical educational programs. To the contrary, he suggests that within the general outline he presents there is and should be wide latitude for variation and experimentation among the schools. Some will stress general management, some lower management, some all levels of management. Some will provide enough specialization to aid students in obtaining their first jobs, others will avoid any intensive specialization. Some will cater only to the outstanding student, others will welcome the average student.

Graduate programs should increase the amount of emphasis on research, students' responsibility for their own development, and the application of the functional business specialities. While undergraduate programs should place primary emphasis on broad background preparation, graduate programs should place greater emphasis on the use of knowledge to solve management problems.

One of the most serious problems in adopting Pierson's revised approach to business education is the scarcity of professors who can implement the program. Most professors of business courses are products of graduate programs that involved a highly specialized approach to a few limited areas of business education. Such professors may lack adequate understanding of the underlying humanities and sciences to be able to relate these areas to the decision process.

But, of course, the major deterent to the changes Pierson advocates is the unwillingness of many faculty members and administrators to admit that they are now failing to meet the objectives of sound business education.

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WILLIAM R. SPINNEY, *Estate Planning, 7th Edition*, (Chicago: Commerce Clearing House, Inc., 1960, pp. 96, $1.50).

The seventh edition of *Estate Planning* bulletin is written in layman's language to acquaint property owners with tax statutes most likely to affect them seriously. It points out methods by which the impact of taxes may be lessened and shows ways to plan for effective conservation of property for the benefit of owners and their dependents.

J.S.L.

Taxes

WILLIAM K. CARSON and HERBERT WEINER, *Ordinary and Necessary Expenses*, (New York: The Ronald Press Company, 1959, pp. v, 250, $10.00).

JAMES C. WRIGGINS and GEORGE BYRON GORDON, *Repairs vs. Capital Expenditures* (New York: The Ronald Press Company, 1958, pp. vii, 144, $10.00).

Readers of these pages will be interested in the availability of two additional books in Ronald Press' Tax Practitioners' Library, edited by Robert S. Holzman. Reviews of earlier books in this series appeared in The ACCOUNTING REVIEW for April 1959, October 1959, and January 1960. These earlier reviews present and evaluate the purposes and format of the series.

The subject-matters of the two books currently reviewed are related as the general is to the specific. Repairs is a type of ordinary and necessary expense. The problem of expensing or capitalizing is common to many kinds of expense categories. The use of a separate book for repairs must be justified by the importance of the area and by the difficulties experienced in making the classification between repairs and capital expenditures.

Both of the books depart from the earlier pattern of the series by devoting only one chapter to case listings and analyses. The Carson and Weiner book otherwise follows the original format: the case analyses are preceded by statements presenting "the problem," and are followed by a concluding chapter containing recommendations on "steps to be taken." While the Wriggins and Gordon book also begins with a statement of "the problem," the cases chapter is followed by a set of three chapters: 3 pages on definitions constitute chapter 3; 18 pages make up chapter 4 under the caption "areas of conflict"; and the 7 pages of chapter 5 are presented as "some conclusions and cautions." Chapter 3 might better have been transferred to the Appendix and the other two chapters combined. The Appendix sections of the two books are similar, and follow the structure for the series.

Carson and Weiner present the problem first "in general" and then "in specific areas"; Wriggins and Gordon use only one chapter for their introduction to the cases. Although the general-problem chapters in the two books are about equal in length, there is an important difference in the degree of orientation accomplished. The Carson and Weiner preview is illuminating and permits the reader to visualize the broad approaches to the subject of ordinary and necessary expenses. The Wriggins and Gordon chapter weaves an uncertain course between fact distinctions and legal concepts. These authors recognize that particular factual situations present opportunity for choices of applicable legal concepts, such as prolongation of useful life, increase in value, increased efficiency of operations, relation to a general plan of reconditioning, amount of the current expenditure relative to the cost of the related unit of property, treatment of the replacement item as a distinct unit or as part of a

larger unit, acquisition for the purpose of beginning operations, differentiation of repairs from losses, and the association of current expenditures with current or future revenues. It seems strange that the authors should interpose objection to the judicial application of the most logical of these legal concepts, that which relates the expenditure to period revenues, on the ground that the approximating "one year rule" had an origin in the depreciation area; such a position sacrifices functionalism to history.

The most important chapter in the Carson and Weiner book is chapter 2 on "the problem in specific areas." A helpful table at the beginning of the chapter lists the expense categories analyzed and indicates the types of tests applied to the listed groups of expense items. Arranged alphabetically, the 21 expense classes range from advertising to travel and entertainment, with an added section on Section 212 expenses. Four tests of deductibility (or nondeductibility) are drawn upon for consideration in connection with the several expense classes. The three obvious tests are: nondeductibility because the expense is "personal"; capital expenditures contrasted with currently deductible expense; and the influence of public policy considerations in the area. The effect of special disallowance sections of the Code, such as Section 267 concerning accrued expenses and interest, is considered, where relevant, under the label of "the unintended benefits question." A fifth analytic category, called "other reductions in taxable income," permits mention of Cost of Goods Sold and unusual deduction aspects.

Both pairs of authors use the dual-column treatment in the case-analyses chapters. Carson and Weiner label their first column "Type of Expenditures"; Wriggins and Gordon use the term "Nature of Expense." Both books use the term "Finding" as a heading for the second column. Carson and Weiner collect selected cases under the same expense-topic headings as they used in the narrative chapter which examined the problem in specific areas. Thus the topics refer to fact categories in a trade or business context, with a final caption of nontrade or nonbusiness expenses. Wriggins and Gordon attempt an analytic classification: for example, the first caption is "merely serve to keep 'operating . . . over normal life'"; another heading is "useful life"; still another is "repair vs. replacement." Whereas Carson and Weiner indicate the deductible or nondeductible result for each case, Wriggins and Gordon subclassify their cases according to whether a deduction was allowed or whether the expenditure had to be capitalized. The comparatively large number of duplicate listings of cases in the Wriggins and Gordon book is due both to the character of the subject-matter and the method adopted for the arrangement of the cases.

Carson and Weiner's concluding chapter, on "steps to be taken" early takes up the procedures available in contesting a deficiency assessment, and thus goes beyond the problem of classifying an expenditure as currently deductible. The remainder of the chapter, however, restates some of the earlier substantive materials in the framework of tax-significant alternative forms for conducting particular types of transactions. The concluding chapters of the Wriggins and Gordon book are not as easily interpreted. The burden of Chapter 4, on "areas of conflict" is not readily distinguishable from that of Chapter 1. The last section of Chapter 4 is called "Some Conclusions," and is followed by a 7-page chapter labeled "Some Conclusions and Cautions." One might infer that the Preface promise to "bring to the reader a clear picture of those patterns that do exist in this area" motivated the page 118 conclusion that "It seems to boil down to a large degree to whether something new has been added or something of value has been acquired." The belated correction appears at page 121, where the authors admit, "Those patterns that do emerge from a study of the cases, an anlaysis of the problem, and an appraisal of the areas of conflict are nebulous at best." The remaining pages of the final chapter emphasize recording and documentation.

Both pairs of authors deserve commendation for undertaking to synthesize opinions in the tax-law area of ordinary and necessary expenses, which is so greatly dependent on business practices.

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COMMERCE CLEARING HOUSE, INC. EDITORIAL STAFF, *1960 U. S. Master Tax Guide* (Chicago: Commerce Clearing House, Inc., 1959, pp. 448, Price: $3).

COMMERCE CLEARING HOUSE, INC. EDITORIAL STAFF, *Interstate Income Law, New Limitations on State Taxes* (Chicago: Commerce Clearing House, Inc., 1959, pp. 64, Price: $1).

C. ROLLIN NISWONGER and JAMES B. BOWERS, *Income Tax Procedure, 1960 Edition* (Chicago: South-Western Publishing Company, 1960, pp. 243.

The publication of the above guides and manuals should be noted by readers interested in income tax problems and procedures.

J.S.L.

RICHARD L. DENNEY, *Connecticut Taxation of Corporations* (Connecticut: The Bond Press, Inc., 1959, pp. 146, Price: $3).

CLARA PENNIMAN AND WALTER W. HELLER, *State Income Tax Administration* (Chicago: Public Administration Service, 1959, pp. 280, Price: $7.50).

In the field of taxation two new volumes have appeared recently. Although they deal with special taxation problems in specific states, they should be of interest to readers in other areas.

J.S.L.

HOLZMAN, ROBERT S., *Federal Income Taxation*, First Edition (New York: The Ronald Press Company, 1960, pp. vii, 644, $8).

The sole purpose of this book according to the author, is "to be helpful to the student of taxation." It is obviously not a working manual for the person with a definite problem to be researched. The book contains a minimum of guidance in procedural matters, but does emphasize the principles which should guide one in planning business transactions, and keeping records on

which to base tax returns. It also emphasizes the preparation and submission of the required returns in such manner as to insure their acceptability with full protection of the taxpayer's rights while holding his income tax liability at a minimum.

This book covers the entire field of Federal income taxation. However, in dealing with the vast range of the law in all its complexity the author was selective and has carefully avoided or minimized the consideration of matters of only minor or occasional interest. Nothing is contained in the book on estate and gift taxes, and social security taxes are considered only in-so-far as the completion of the self-employment portion of Schedule C is considered in the chapter on preparation and filing of returns. The text materials are quite readable and cross-indexed well. Many parts consist primarily of recitation or rephrasing of portions of the Internal Revenue Code or the regulations. Where such rephrasing occurs it provides clarity without loss of accuracy except in possible lack of detail for which the reader is provided footnote references to the appropriate source. Copious bottom of the page footnotes appear throughout the book referring the reader to the Internal Revenue Code, regulations, rulings, and cases which are the sources for what is loosely referred to as the tax law. As might be expected with so complex a subject as income taxation the reader would find it desirable to utilize these references quite generously. He would also need to become acquainted with the available tax services, not mentioned in the book, for use in researching specific tax problems.

The 644 pages of text material in this book are divided between 29 chapters varying in length from 15 to 32 pages each, with each chapter having independent page numbers. Each chapter is followed by a supplement giving well selected suggested readings and a substantial number of thought provoking questions for homework or class discussion. In most instances these supplements also include reference to a number of leading cases on significant points considered in the chapter. The appendix contains copies of the major income tax forms and an index.

Persons familiar with other texts on income taxation will be struck with the difference in organization of subject matter in this book. There is no discussion of computation of the tax until the 24th chapter where there also appears the first discussion of deductions for personal exemptions and dependents. There is no effort to deal with inclusions in, and exclusions from, gross income in separate inclusive areas of the book. Following two introductory chapters on general principles and manner of operation of income tax law, the third chapter, entitled "Obligations of Being a Taxpayer," deals with such matters as the nature of the income tax return; differences which may exist between book and taxable income; who must file returns; what must be submitted with the returns; how, when and where returns are filed; information returns; records; reliance upon an advisor; effect of failure to comply with formalities; duty to know the law; and choice of appropriate accounting periods. Chapters 4 through 8 consider types of income, capital gains, recognition of gain or loss, sales, and dividends. Chapters 9 through 14 then take up deductions primarily, but in Chapter 11, which is entitled "Compensation," both the inclusion in gross income and the deduction phases of this subject are considered. The same is true of Chapter 12 which is entitled "Insurance and Annuities."

Special tax treatment for individuals and for corporations is presented in Chapters 15 and 16 respectively. This arrangement is useful in bringing together for individuals such matters as the adjusted gross income concept, contribution deduction limitations, exceptions from the basic rules granted to persons in the armed forces, the medical expense and child care deductions, alimony treatment, and the special rules applicable to farmers. For corporations, Chapter 16 presents the elections under Sections 1361 and 1372, the tax effects of issuance of stock and securities, and the rules applicable to special types of corporations. Corporate reorganizations and tax free exchanges are covered in Chapter 17.

Chapters 18 and 19 adequately state the rules applicable to partnerships, but are lacking in exposition of reasoning behind the rules. Chapters 20 and 21 deal with estates and trusts briefly but sufficiently for a book on general principles of income taxation. Chapter 22 brings together in convenient manner the various ramifications of foreign operations in their relation to Federal income tax on individuals and corporations. Chapters 23 through 26 take up the preparation and filing of tax returns, tax computations and credits, the pay-as-you-go method of tax collection, assessment and collection of tax, audits, litigation, claims for refunds, interest and penalties, and fraud.

One of the best features of the book is found in the final three chapters entitled "Transactions with Related Parties," "Buying and Selling Techniques," and "Tax Planning." These chapters provide guidance in thinking before consumation of transactions, laying the foundation for proof of entries on returns, avoidance of tax traps, and reliable procedures in observing the obligations of being a taxpayer while at the same time preserving the rights of the taxpayer and minimizing his tax liability.

In the opinion of the reviewer this book should serve as a useful text on Federal income taxation in the hands of a good teacher capable of expanding on it where necessary and able to inspire the student to utilize properly the underlying sources and the available tax services. It would be suitable for a one term course in income tax principles, but would not meet the needs of the person planning instruction in both principles and procedure.

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Tax Revision Compendium, Papers on Broadening The Tax Base, Submitted to the Committee on Ways and Means, House of Representatives, Beginning November 16, 1959 (Washington: Government Printing Office, 1959, pp. 2382, 3 volumes).

Perhaps all that can be done in the way of reviewing a publication such as this compendium is to indicate

briefly its nature and scope. Its extremely large size, the great number of its contributors, and the divergence of views expressed on each of the general subjects discussed preclude the usual type of review which explains and evaluates the author's viewpoints and development of his subject.

The Committee on Ways and Means was interested in broad policy matters rather than discussions of detailed technical questions. Any proposed legislation which might result from these hearings will, of course, be exposed to public hearings and expressions of opinions by interested parties who request permission to testify. Chairman Wilbur D. Mills indicated the purpose of the hearings when he stated the following view regarding income tax reform:

> "... the immediate objective of income-tax reform is reduction in tax rates without sacrificing revenues required for responsible financing of government. At the same time, tax reform must seek, among other things, (1) a tax climate more favorable to economic growth; (2) greater equity through closer adherence to the principle that equal incomes should bear equal tax liabilities; (3) assurance that the degree of progression in the distribution of tax burdens accords as closely as possible with widely held standards of fairness; (4) an overall tax system which contributes significantly to maintaining stability in the general prive level and a stable and high rate of use of human and material resources; (5) a tax system which interferes as little as possible with the operation of the free market mechanism in directing resources into their most productive uses; and (6) greater ease of compliance and administration."

Some of the better-known contributors to this compendium are: Stanley S. Surrey, Walter J. Blum, Roswell Magill, Neil H. Jacoby, Walter W. Heller, John F. Due, Paul J. Strayer, Lawrence H. Seltzer, Martin Atlas, C. Lowell Harriss, Sidney Davidson, Joel Dean, W. E. Dickerson, Joel Barlow, George Terborgh, William A. Paton, Maurice E. Peloubet, Harry J. Rudick, Willard J. Graham, Harold M. Groves, Dan Throop Smith, Merle H. Miller, Russell C. Harrington, Michael D. Bachrach, Thomas C. Atkeson, Carl S. Shoup, Arthur Willis, Norman A. Sugarman, Roy Blough, Richard A. Musgrave, Harley L. Lutz, and Richard Goode.

As long as this list is, it represents much less than half the contributors; there are some one hundred and eighty three separate articles; some of them are co-authored; some persons have contributed more than once. Some of the selections are based upon articles previously published by the authors or are a restatement of their views which are already fairly well known.

The principal subject matter sections of these volumes, each of which is composed of several separate selections prepared by different authors, follows:

I. Major objectives and guides for tax reform.
   a. General appraisal of the income tax; b. The relative role of income taxes in the tax system.
II. Statistical analysis of the tax base and of the national income.
III. Specific elements in the computation of taxable income.
   a. Individual income tax exclusions; b. Individual income tax deductions; c. Taxation of family income; d. Taxation of the aged; e. Taxation of fluctuating income; f. The exemption of interest; g. Business deductions—1. depreciation, 2. depletion, 3. general business expenses, 4. research and development expenditures; h. Accounting provisions; i. Capital gains; j. Pensions and other employee benefit plans; k. Compliance and enforcement.
IV. The taxable entity.
   a. Dividends; b. Corporate distributions and adjustments; c. Investment companies; d. Partnerships; e. Corporations taxed as partnerships; f. Estates and trusts.
V. Special problems in corporate taxation.
   a. Mutual financial companies; b. Cooperatives; c. Insurance companies; d. Tax exempt organizations; e. Foreign investments.
VI. The structure of tax rates.
   a. Individual rates; b. Corporate rates; c. Flexibility of the revenue yield.

These three volumes are an important addition to income tax literature and should be useful as a handbook for businessmen and tax practitioners who are interested in a basic discussion of tax policy and principles. Students and teachers of income taxation at the graduate level—whether in the area of law, accounting, or economics—will find these volumes to be valuable as books of readings and as the basis for seminar discussions. This compendium should be a part of every library which has a collection covering the subjects of income taxation, income determination, and accounting.

CHARLES J. GAA
Professor of Accounting
Michigan State University

AMERICAN ACCOUNTING ASSOCIATION

Announcement of

FELLOWSHIP PROGRAM IN ACCOUNTANCY

FOR ACADEMIC YEAR 1961–1962

PURPOSE

The purpose of the fellowship program is to increase the supply of qualified teachers of accountancy in the United States. Fellowships will be awarded to assist individuals in furthering their preparation, through doctoral studies, for teaching in colleges and universities.

ELIGIBILITY

1. Expressed interest in and outstanding promise for a career in teaching accountancy.
2. A master's degree or equivalent in accountancy, business administration, or other relevant areas.
3. Recommendation by the institution at which the applicant is currently in residence, the university at which he has begun the doctoral program, or the university which awarded the master's degree.
4. Need of financial assistance.
5. United States citizenship.

AMOUNT

The amount of the fellowships will generally range from $500 to $1,500 for the academic year.

DURATION

Fellowships will be granted for one academic year, with the possibility of renewal, upon application, for one additional year.

FIELD OF STUDY

The doctoral program is expected to be in accountancy or in another area suited to preparing the applicant for teaching accountancy.

SELECTION OF INSTITUTION

The recipients may use the fellowship at any university in the United States which offers an appropriate doctoral program.

PAYMENT

Payment of the fellowships will be made to the recipient, in equal installments at the beginning of each semester or quarter.

CLOSING DATE

The closing date for receipt of applications and supporting data is March 1, 1961. Awards will be announced on or about April 15, 1961. Requests for application forms should be addressed to:

R. Carson Cox, Secretary-Treasurer
American Accounting Association
The Ohio State University
Columbus 10, Ohio

ADMINISTRATION

The program is administered by a committee composed of the three immediate past presidents of the American Accounting Association.